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OF

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AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, MOLLUSKS,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

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exhibited the same marked actions, individual ones bending quite back and returning with some quickness; in the evening only these latter moved, the gills being quiescent. On the 17th the gills were more curled, and most of them pale; they showed scarcely any movement, but the pectinations, especially of those gills which retained their colour, moved now and then as before. The small piece of body in connection with the gills had become shapeless and flocculent, and part of it had fallen away. I found the gills on the 18th more curled up and somewhat entangled or confused-looking, all but one or two bleached; only after very patient watching (as usual with a pocket lens) fancied I detected a trifling movement among some of the pectinations, but it was not repeated and the observation was uncertain. 19th. Failed to observe any motion of the pectinations, and on slightly shaking the bottle to excite movement if any life remained the two groups of gills fell quite apart, from the advance of decomposition in the basal portion. It is not perhaps certain whether the division of the annelid's body was spontaneous, or whether it should be charged on the fish which shared its captivity, but as neither portion was devoured I should be inclined to think the injury was self-inflicted, as it is an acknowledged habit of some of its tribe. I do not know if the power of reproducing lost portions is as strong in Sabella as it is in some of the Annelida, but the great tenacity of life indicated in surviving such severe injury for more than a week, and the vigour which the movements of this specimen showed for some days, impressed me with the notion that had it been placed in more favourable circumstances, as in the pure water of the ocean, it might possibly have restored the missing portions of its frame, and, secreting a new tube, made a fresh start in life with literally an old head upon young shoulders. Annelids, however, seem to differ much in their reproductive powers; in some species separation of the body into two portions and the production of a second set of organs for the unprovided moiety appears to be the appointed means of increasing the species. Though this action has been denied it has been reasserted by Mr. Gosse from eye-witness; the subjects of his observations, however, Nais and Syllis, are neither of them tube-worms, and it seems a new head is grown before self-division occurs. Dr. T. Williams, as quoted by Dr. Carpenter, states in reference to Nais that the separated portions henceforth take no food and seem merely to exist in order to develope their eggs. Mr. Wood observes that the common notion of an earthworm cut in two becoming two complete worms is erroneous, and asserts that the injury unless inflicted near the tail end is fatal, the head portion surviving longer than the other. Mortification, he says, spreads from the wound, ring after ring withering and dropping off, each half in the same manner dying by degrees, but he does not state for what period life continues. The case of the Sabella was somewhat similar: the posterior portion, it seemed, soon died; in the anterior mortification commenced at the wound, vitality retreated forward and found a last refuge in the breathing organs, where it made a considerable stand. As these singular creatures wear their lungs on the top of their head it was the most anterior part of the frame in which the vital spark at length died out.—*George Guyon; Ventnor, Isle of Wight, November* 24, 1862.

Notes on Sea Anemones, Observations on the Tank, &c.—The following incident of a battle between two anemones of the Sagartia family fully bears out the traditional reputation of these ancient warriors. It also seems to indicate the possession by these humble yet beautiful creatures of an instinct not often surpassed in animals of higher organization. I received a consignment of anemones from Tenby a few weeks ago, and among them were two or three of the beautiful Sagartia miniata, *var.* venustoides.

One of these seemed to be ailing, and with the view to give it the best chance of recovery, I placed it in what I call my Ilfracombe tank, which has been established some time, and vegetation well developed. The anemone in question was located on the end of a small piece of mica, about the size of one's three fingers, and of a tolerably flat and even surface. In the tank were several of the S. Sphyrodeta species, some of which have not shifted their position for months. Within an inch of the opposite end of the stone on which the S. miniata was fixed, was one of the S. Sphyrodeta above-named. The new comer was placed in his new home on the 18th of October, at six o'clock in the evening. About an hour afterwards, on casually looking at the tank, it seemed to me that the S. Sphyrodeta was moving his position towards the stone. Subsequent examination confirmed the impression, for in a couple of hours more he began the ascent of the stone. Fancying that his intentions were felonious towards my new pet, and for the purpose of interrupting his advance, I placed a bit of oyster-shell, of the size of an old penny, between the two. Half an hour elapsed, and exhibited the S. Sphyrodeta in the act of crossing the barrier, still advancing in a straight line towards the apparently unconscious opponent. As an additional obstacle to its progress I put a Trochus shell on the oyster-shell, and so left the combatants for the night, under the firm impression that no quarrel would take place. My reasons for these precautions were the result of my observations that the S. Sphyrodeta is, of all the anemones with which I am acquainted, the most spiteful. On the slightest irritation it emits the *acontia* most freely, and other anemones so irritating or coming in contact with it have been stung severely. In more than one instance which I remember, a Gemmacea has been killed by S. Sphyrodeta, and I am therefore the more careful to keep them isolated in the aquarium. The morning inspection showed that a severe battle had been fought, for both the anemones were detached, lying within half an inch of each other, and literally covered with *acontia*, and S. Sphyrodeta, from his flabby and lacerated appearance, indicated that he had come off second-best in the fight. But the most remarkable part of the story is that the two shells were in the exact position in which they were left: the inference therefore is that S. Sphyrodeta must have gone round the bit of stone (a distance of three or four inches) so as to attack his adversary. I at once removed S. miniata (which soon got better) to prevent further "family jars," but it was quite a week before the angry little S. Sphyrodeta (which is not half the size of the former) adhered, and seemed "himself again." Can any of the readers of the 'Zoologist' give information respecting the reproduction of Serpulæ? In an aquarium which has never been tenanted by a single specimen, two specimens of S. triqueta have recently appeared, one on the slate side of the tank and another on a bit of rock-work contiguous. They are each about half an inch in length, and from the constant expansion of their little feathery plumes I conclude that they are in perfect health. In another tank, where are some fine specimens of S. contortuplicata from Weymouth, I observe that they occasionally cast the little valve which closes their tube, and that it is renewed by Nature. What can be the reason for this? To my great delight, a sample of sea-water procured from Rhyl, in the early part of October last, contained the Noctiluca in great abundance. They continued visible for about ten days whenever the water was agitated, but gradually disappeared during the period. This is the first time I have ever witnessed this beautiful phenomenon away from the sea coast. To do so in an aquarium in this "city of smoke" is a treat of no ordinary kind. On opening a large mussel (*Mytilus edulis*), a few days ago (which, by the way, I find by experience to be the best food for all anemones), I found, to my astonishment, a small shore crab (*Carcinus mænas*), about the size of a silver fourpence, cosily ensconced near the folds of the gills. Neither the mollusk nor the crustacean appeared the better for this abnormal close connection, the former being greatly emaciated and its shell full of water, while the latter, although plump, seemed feeble and incapable of motion: its shell was leathery, and lacked the usually calcareous nature,—caused in all probability by its living entombment. The crab survived its release several days.—*W. R. Hughes; the General Hospital, Birmingham, November* 10, 1862.

Occurrence of the Sand Pintlet (Halicampa chrysanthellum) *at Banff.*—In Mr. Gosse's beautiful work on a beautiful tribe, the British sea-anemones, the only locality mentioned for the above worm-like species is Cornwall. I beg to say that they are to be found here. Two were procured a short time since, and although sickly and evidently dying,—having been dislodged from their homes and dashed on shore by the waves of a tempestuous sea,—still I managed to keep them alive the greater part of three days. During this period I had the pleasure of seeing them frequently expand their little star-like disks. Of course I have them preserved; but alas! their beauty is gone for ever.—*Thomas Edward; Banff, January* 5, 1863.

Trans-Atlantic Sketches.—No. 1. *On the Little Miami River, Waynesville, Warren County, Ohio.*

By J. F. WHITEAVES, Esq., F.G.S., &c., &c.

IT is a sultry afternoon in the latter end of July, as we leisurely stroll from our little village hotel in the "buck-eye" State, the thermometer at from 90° to 95° in the shade. We have been watching the ruby-throated humming bird hovering over the flowers of the trumpet-creeper at the end of the verandah. Into the village street, shaded by "trees of heaven," locust trees and the beautiful Indian bean, with its pods fully a foot long. Along a dusty turnpike road, running parallel or nearly so, with the little Miami river, our main object being to collect the Unionidæ of that stream. On one side of the road, fields of Indian corn stretch down to the river; opposite to these are hills, partly cultivated, partly woodland, crowned with large peach orchards. The commonest road-side weeds here are Mentha viridis, the cosmopolite Anthemis cotula, Scrophularia nodosa, Vernonia noveboracensis, Datura stramonium, Phytolacca decandra, Verbena hastata, V. urticifolia, Ambrosia artemisiæfolia, and Cynoglossum Morisoni. When just outside the town, we strike a short distance up the hill into a friend's garden to examine a nest of the American goldfinch (*Chrysomitris tristis*). It is built in a fork of a peach tree, and in its construction closely resembles that of the European species, the lining of the nest in each case being of thistle-down, but the eggs of the American species are white, with a very faint bluish tinge, and generally unspotted; the birds themselves are very distinct. Peach trees in Ohio, it should perhaps be observed, are not trained against a wall, as in England, but grow free, like apple trees. Speaking of birds' nests, not far from here I found a nest of the Virginian colin (*Ortyx virginianus*): it was placed in a field of Indian corn, between the rows, where two small decayed logs were lying at right angles, surrounded by a patch of weeds, principally Rumex and Chenopodium, with a little grass. The nest itself was a shallow hole scratched in the ground, in the angle formed by the aforesaid logs, and possessed hardly any lining, a very little dirty straw and a feather or two. The scantiness of lining and its want of cleanliness may account for the stains so often seen on these eggs, the original colour being probably pure white. The old bird was sitting as we approached, partly concealed by the logs and grass. The eggs in this particular case were six, the full complement being from about fifteen to twenty.

But to return to our stroll. On the hill-side, in grass fields, we observe Silene stellata and Tradescantia pilosa. A little further on we come to some woods with little or no undergrowth. Here the black walnut is frequent, also the fœtid or Ohio "buck-eye" (*Æsculus glabra*), the abundance of which in this part of the world has suggested the popular name of the State. Under their shade are flocks of the American goldfinch, occasionally a robin (*Turdus migratorius*), also blue birds (*Sialia sialis*), "chipping sparrows" (*Spizella socialis*), and now and then a purple grackle (*Quiscalus versicolor*). We get into the road again, and, clambering over the fences, cross through the tall Indian corn to the river. In among the corn grow the beautiful wild potato vine (*Ipomœa pandurata*), the ground cherry (*Physalis viscosa*), Sicyos angulatus, Phaseolus diversifolius and Portulaca oleracea. Shells of snails of three species (Helix clausa, H. profunda and H. elevata) occur in myriads strewn over the fields, in a kind of semi-fossil state. Cultivation has had the effect of making these, especially the last-named, comparatively rare, at least in the immediate neighbourhood. Between us and the river a dense weedy thicket intervenes, conspicuous among which, both in size and relative number, is the tall coarse Ambrosia trifida, reaching here to the height of from twelve to fifteen feet. Other plants composing it are the tall nettle (*Urtica gracilis*), the horse mint (*Monarda punctata*), Actinomeris helianthoides, Teucrium canadense, with occasionally bushes of the American elder (*Sambucus canadensis*) and other trees.

We push through this tangled thicket towards the river, and hearing a heavy splash are just in time to see a large snapping turtle take the water. The leather-backed and the musk turtle (*Trionyx ferox* and *Sternothærus odoratus*) are abundant in this river, also many of the more critical forms, but having no books with us we are compelled, rather unwillingly, to ignore their existence. A little further on a narrow creek runs into the river, and here we propose to commence active operations. Where the small stream and river meet is a shady grove. The trees are principally planes (*Platanus occidentalis*), often festooned with the graceful winter grape (*Vitis cordifolia*), sugar maples, red and white oaks, and, rather more rarely, the red mulberry (*Morus rubra*) and the hackberry (*Celtis occidentalis*). We pause here and botanize for a short time. The plants of most general interest are Mimulus ringens, Impatiens fulva, Scutellaria lateriflora, Lobelia syphilitica, the Indian plantain (*Cacalia suaveolens*), the American blue bell (*Campanula americana*), the bunch berry (*Cephalanthus occidentalis*) and the cup plant (*Silphium perfoliatum*). At the point where the two streams meet is a small island covered exclusively with Dianthera americana. The bottom is gravelly and somewhat pebbly. The shore is strewn with dead valves of Unio, principally U. costatus, indications of the mania for hunting pearls which has existed, and yet does exist, in this village. Having examined many Unionidæ, I am led to infer—*first*, that although pearls are most abundant in the animals of the genus Alasmodon, they are not *peculiar* to that group of shells; I have found them in the Unio phaseolus, U. gibbosus, U. costatus and U. multiradiatus: *secondly*, that they may be found in almost any part of the animal *except the foot;* I have found a tolerably large pearl thoroughly enveloped in the cardinal muscle of an Alasmodon.

We proceed to wade into the water, but cautiously, lest we should get our feet badly cut by dead shells. As soon as we are fairly out in the stream, we lift up and examine these defunct mollusks. In them we find Cyclas solidula, Melania depygis, Paludina integra and an Ancylus—alive, also dead shells of Pisidium virginicum and Amnicola Sayana. The Amnicola Sayana is a terrestrial species, living in damp places with Helix, Succinea and Pupa, and occurs alive near the banks of the river, about a mile above the spot we are exploring. Occasionally with these we get the American crayfish (*Astacus Bartoni?*) and the curious larva of a Phryganea (?), whose case looks so much like the turbinated shell of a mollusk that Mr. Lea described it as a new species, under the name of Valvata arenifera. The living

Unionidæ are abundant further out, where the current is most rapid, and the water about knee-deep, two-thirds of the shell being buried in the gravel. We wade slowly for some time, feeling with our hands along the bottom for the points of the shells.

During a month's stay at Waynesville, in the most favourable part of the year, we found the following fresh-water shells in the Little Miami River, within a mile or two of the town:—

Anodonta plana, *Lea*
„ edentula, *Say*
„ imbecilis, *Say*
Margaritana (Alasmodon) rugosa, *Barnes*
* „ „ truncata, *Say*
* „ „ calceola, *Lea*
*Unio costatus, *Rafinesque*
(U. undulatus, *Barnes*)
* „ flavus, *Raf.*
(U. rubiginosus, *Lea*)
„ cardium, *Raf.*
(U. ventricosus, *Barnes*
U. subovatus, *Lea*
U. occidens, *Lea, female var.?*)
* „ triqueter, *Raf.*
(U. triangularis, *Say*)
* „ clavus, *Lamarck*
„ rectus, *Lamarck*
* „ lapillus, *Say*
„ dilatatus, *Raf.*
(U. gibbosus, *Barnes*)

Unio siliquoidens, *Barnes*
„ alasmodontinus, *Barnes*
(U. pressus, *Lea*)
* „ fasciolus, *Raf.*
(U. multiradiatus, *Lea*)
* „ fasciolaris, *Raf.*
(U. phaseolus, *Hildreth*)
* „ parvus, *Barnes*
* „ subrotundatus, *Raf.*
(U. circulus, *Lea*)
* „ tuberculatus, *Raf.*
(U. verrucosus, *Barnes*)
Sphærium (Cyclas) solidulum, *Prime*
Pisidium virginicum, *Bgt.*
(Cyclas dubia, *Say*)
Paludina integra, *Say* (and reversed variety)
*Melania depygis, *Say*
Planorbis trivolvis, *Say*
Physa heterostropha, *Say*
Ancylus (undetermined)

Of these twenty-seven shells about half are purely western species, and do not extend far north (say not so far as the 43rd or 44th degree of N. latitude) or east of the Alleghany Mountains; to these an asterisk is prefixed. All the rest (save Anodonta imbecilis and Paludina integra) occur as far north and east as Lower Canada, for example, and, the two species excepted, have been found so far north in the state of New York, that it is not unlikely they may exist in the "Eastern townships" of Lower Canada.

But we are again digressing. During the wading we have been silently watching the proceedings of two musk rats, as they leisurely swim across the stream. Three red-headed woodpeckers (*Melanerpes erythrocephalus*), two males and one female, are investigating some rotten plane trees on the opposite side of the river. A belted kingfisher (*Ceryle Alcyon*) perches on a dead tree: suddenly we hear a splash, and looking towards the spot whence the sound proceeded, we observe the kingfisher jubilantly return to the tree crunching one of the river crayfish with evident satisfaction. "From the woods came voices of the well-contented doves,"* the dove in this case being the American turtle (*Zenaidura caroliniensis*). A little lower down several green herons (*Butorides virescens*) and some "kill deer" plovers (*Ægialites vociferus*) are wading about seeking what they may devour.

But, tired of wading, we cross the river to the railway, and walk some distance along the line. Passing by the station we observe some shady woods, towards which we turn. The trees are mostly the American beech (*Fagus ferruginea*), with little undergrowth save papaw bushes (*Asimina*). The May apples (*Podophyllum peltatum*) are beginning to ripen, and about the roots of the trees we notice the delicate green fronds of Adiantum pedatum. Some rotten logs are lying about, which we turn over and hunt for land shells. After about half an hour's search, we have obtained living specimens of Helix albilabris, H. thyroidus, H. clausa, H. palliata, H. tridentata, H. inflecta, H. alternata, H. striatella and H. perspectiva. After a short rest we turn towards the river again. Just below a dam, on one bank a section exposes alternations of the shales and clays of the Hudson river group, which are Lower Silurian. Its most abundant fossils here are † Strophomena alternata and S. planumbona of Hall, Orthis Lynx, O. subquadrata, O. testudinaria and O. occidentalis, Rhynchonella capax and R. modesta, Ambonychia radiata, Ciclonema bilix, Orthoceras crebriseptum; the delicate bryozoon Stenophora fibrosa, and the trilobite so common in Ohio, the Calymene senaria of Conrad,—probably identical with the well-known British species Calymene Blumenbachii. Living under small pieces of timber lying about on the damp grass, &c., we find Helix ligera, Bulimus marginatus, Pupa armifera, P. contracta, P. ovata, and Carychium exiguum, one of the smallest of the American land shells.

But it has taken some time to collect these, it is getting dusk, and the fireflies, called "lightning bugs" in the elegant phraseology of the district, are beginning to appear; so we stroll gently homewards. Many interesting Coleoptera, Lepidoptera, &c., were observed, but these I have not enumerated, fearing lest I should overburden this sketch with mere lists of species.

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* Tennyson's 'Gardener's Daughter.'

† These fossils were kindly determined for me by my friend Mr. Billings, the palæontologist of the Canadian Geological Survey.

It has been urged in favour of Natural History studies that they are eminently conducive to health. This appears to me to be a great fallacy. Three years practical out-of-doors work in Oolitic Geology has helped considerably, in my case, to induce severe asthma. On leaving England I found similar results awaited me. Not more than two months spent in collecting the fresh-water mollusks of the interior of the state of Ohio resulted in an attack of fever and ague; and I was told that collecting Unios in this very river cost Mr. Lea, the brother of the well-known author of so many papers on American Unionidæ, his life. The botanist and the ornithologist have to investigate swamps, &c., at the risk not only of malaria, but of bronchial complaints, &c., to which so many of our fellow-countrymen are already predisposed. That these evils may, to some extent, be guarded against is true, but the cause of Natural History can never have anything to gain either by the suppression of facts or the distortion of truth.

J. F. WHITEAVES.

Anecdote of a Dog and a Hen.—A friend, who is an accurate observer of Nature, has recently given me the particulars of a very curious attachment between a dog and a hen, and kindly allows me to publish it. What he describes, took place at his own residence near Shaftesbury, in Dorsetshire, and has been going on for the last twelve months. The dog, which is a black and tan terrier, named "Figaro," is an old acquaintance of my own, and lives (generally tied up) in a little yard where no other animals are kept except a solitary hen, "Polly," and a cat. My friend writes, "It is certainly amusing to see the confiding way in which our dog and hen carry things on. When the dog is tied up, Polly sits half the day, at times, by his side, on one of the logs upon which the kennel is put to keep it off the ground, and in rainy weather she gets inside, and you see their two heads peering out of the box together. Also when she wants to lay, unless she is closely watched to prevent it, she gets in quite behind him, and he draws a little forward. Indeed whenever Figaro is seen with his two fore paws hanging out of the door-way it is pretty certain that Polly has an egg within. The eggs are, however, always perfectly safe under the dog's care; he has never been known to touch one of them, as some dogs will do." "I told you," he continues, "of their feeding amicably together, but I did not mention that when it is a case of barley meal or scraps and potatoes, if Figaro is getting on ahead too quickly, Polly pecks him a gentle reminder on the nose that "ladies first" is good politeness—a hint which he does not fail to regard. Our new cat, "Tom," was getting upon first-rate terms with both when I left home, three weeks ago, and could already feed with them, though somewhat upon sufferance, his approaches to the platter being dashed with a touch of creepiness and tail-drooping. When I return I shall no doubt find him in full enjoyment of recognition by the other Powers."—*A. Rikey Hogan; 13, Westbourne Square, London, W., December* 26, 1862.

NOTICES OF NEW BOOKS.

'*An Introduction to the Trochilidæ or Family of Humming Birds.*' By JOHN GOULD, F.R.S., &c. London: 1861.

IN inviting the attention of my readers to Mr. Gould's 'Monograph of the Trochilidæ' I am perfectly aware that I address myself to many who are well acquainted with that gorgeous work, and who desire no incentive to study its beauties. But there is a far larger class who, totally unable to possess themselves of that expensive luxury, may yet enjoy the minor volume, which, with the exception of omitting the history of the species, is nearly a literal reprint of the folio work, written to accompany the life-like illustrations; and may even be pleased to find, in the inexpensive pages of the 'Zoologist,' extracts which give a faithful idea of the author's power of observation, and aptitude in laying his conclusions clearly before his readers.

In dealing with a subject so seductive as a history of humming birds it is difficult indeed to resist the temptation to launch into a series of grandiloquent paragraphs that would ill become the staid and sober character of the 'Zoologist, which is not, and I trust never will be, a "Romance of Natural History." It is difficult, indeed, to emancipate oneself entirely from the influence of that enthusiastic admiration which the author lavishes so lovingly on his "living gems," and it is only by restricting myself most rigidly to the bibliographical aspect of my theme that I can hope to escape the charge of sacrificing Science to a love of display. The first mention of humming birds occurs in a work intituled 'Les singularités de la France Antarctique,' in which the names of André Thevet and Jean De Lery figure as the companions of a Monsieur la Villegaignon, who, in 1555, appears to have made an unsuccessful search for gold and an equally unsuccessful attempt to found a colony in America, a new world to which our neighbours modestly assigned the name of "Antarctic France." After this both incidental and detailed notices of humming birds are numerous and frequent; Piso, Ximenez, Acosta, Gomara, Marcgrave, Garcilasso, Dutertre, Sloane, Catesby, Edwards, Brown, Labat, Plumier, Feuillée, Rochefort, Humboldt, D'Orbigny, Schomburgk, Tschudi, Castelnau, Burmeister, Gosse, and many others, have contributed to the general stock of knowledge. But the works in which there is a more systematic account of these birds are by Linneus, Latham, Audebert, Vieillot, Lesson, Bonaparte, Gray, Illiger, De Blainville, Reichenbach,

&c., all of whom have contributed more or less to pave the way for the complete monograph now offered to the public from the pen and pencil of Mr. Gould.

The comprehensive question of natural affinities may be said to pervade every part of Mr. Gould's 'Introduction,' since it embraces every character, whether structural, economical or physiological, of any group of animals, and therefore, without following the exact order in which Mr. Gould has arranged the different branches of his subject, I shall extract most of his preliminary observations, arranging them after my own fashion. Let me, then, recommend my readers carefully to peruse what Mr. Gould has written on these several subjects, and I will endeavour to extract from this source reasons for not agreeing with those views of the affinities of humming birds which have latterly become prevalent, and which Mr. Gould seems rather to favour without giving in his unqualified adhesion.

The subject of bird affinities is fraught with no small difficulty, and the difficulty is increased by the apparently ineradicable antipathy that all ornithologists evince to anything approaching a natural or physiological classification of birds. Nothing can be more unnatural than what is called the Vigorsian or quinarian arrangement, and yet this artificial and fanciful system has now been in vogue in Great Britain for more than twenty years; and on the Continent, where our quinary and ternary systems are matters of great mirth, naturalists are agreed in adopting the scarcely less objectionable method of admeasurement. When Cuvier pronounced in favour of structure as the guide to be employed in classification, he enunciated a theory which has fettered the lucubrations of all subsequent systematists; even the quinarians and ternarians have never made the slightest attempt to emancipate Science from the thraldom of admeasurements, but have added thereto the additional thraldom of numbers. Mr. Gould takes a somewhat more liberal view of system than either the counters or the measurers, and is willing to consult habit and economy; but I cannot feel quite certain at what conclusions he has arrived farther than these; *first*, that the humming birds most nearly resemble the swifts; *secondly*, that they are nevertheless sufficiently different to constitute a distinct order. I will, however, proceed at once to Mr. Gould's general observations on the natural affinities of humming birds, only premising that the whole of his remarks are made in the true spirit of philosophical research, and are scarcely susceptible of improvement, except inasmuch as he has studied the views of others somewhat more seriously than they deserve.

"Ornithologists of the present day consider the humming birds to be more intimately allied to the true swifts than to any other group of birds. This view of the subject is supported by the fact of the humming birds, like the swifts, having most ample wings, vast powers of flight, and a bony structure very closely assimilating; and this alliance is still further exemplified in some parts of their nidification, the number and colour of the eggs, &c. It is not to be expected that, with this subject before me for so many years, I should have been inattentive to the consideration of the place these birds should occupy in our attempts at a natural arrangement; and while I admit that they are somewhat allied to the swifts, they are so essentially distinct from these and all other birds, that they might be separated into a distinct order with quite as much, if not greater, propriety as the pigeons, when considered in relation to the gallinaceous birds. They have certain characters, dispositions and modes of life which are not to be noticed in any other group of birds: their cylindrical bills, double-tubed tongues, enormously developed sternums and corresponding pectoral muscles, rigid primaries, the first of which is the longest, and their diminutive feet, separate them from all the others. In the swifts and fissirostral birds generally the sexes are alike in outward appearance; in the humming birds they are in nearly every instance totally different in their colouring; in the former the young assume the livery of the adult before they leave the nest, while the contrary is the case with the humming birds. How different, too, is the texture of the luminous feathers with which they are clothed; and vastly diversified in form as the tail is in the various genera, the number of feathers in the whole of them is invariably ten. In their disposition they are unlike birds, and approach more nearly to insects. Many of the species fearlessly approach almost within reach of the hand; and if they enter an open window, as curiosity may lead them to do, they may be chased and battled with round the apartment until they fall exhausted; and if then taken up by the hand they almost immediately feed upon any sweet or pump up any fluid that may be offered them, without betraying either fear or resentment at their previous treatment. A Trochilus colubris, captured for me by some friends at Washington, immediately afterwards partook of some saccharine food that was presented to it, and in two hours it pumped the fluid out of a little bottle whenever I offered it, and in this way it lived with me a constant companion for several days, travelling in a little thin gauzy bag distended by a slender piece of whalebone, and suspended to a button of my coat. It was only necessary for me to take the little bottle from my pocket to induce it to thrust its spiny bill through the gauze, protrude its lengthened tongue down the neck of the bottle and pump up the fluid until it was satiated; it would then retire to the bottom of its little home, preen its wings and tail-feathers, and seem quite content."

In continuation of, and connection with, this subject the following note is too interesting to be omitted.

"The specimens I brought alive to this country were as docile and fearless as a great moth or any other insect would be under similar treatment. The little cage in which they lived was twelve inches long by seven inches wide, and eight inches high. In this was placed a diminutive branch of a tree, and suspended to the side a glass phial, which I daily supplied with saccharine matter, in the form of sugar or honey and water, with the addition of the yelk of an unboiled egg. Upon this food they appeared to thrive and be happy during the voyage along the sea-bord of America and across the Atlantic, until they arrived within the influence of the climate of Europe. Off the western part of Ireland symptoms of drooping unmistakeably exhibited themselves, but although they never fully rallied, I succeeded in bringing one of them alive to London, where it died on the second day after its arrival at my house. The vessel in which I made the passage took a northerly course, which carried us over the banks of Newfoundland, and although the cold was rather severe during part of the time, the only effect it appeared to have on my little pets was to induce a kind of torpidity, from which, however, they were readily aroused by placing them in the sunshine or in some warm situation, such as before a fire, in the bosom, &c. I do assure my readers that I have seen these birds cold and stiff and to all appearance dead, and that from this state they were readily restored with a little attention and removal into light and heat, when they would perk up, flutter their little wings, and feast away upon their usual food as if in the best state of health."

Truly a beautiful picture! Shall we ever see these little creatures introduced into our English or even European conservatories? The temperature presents no difficulty, neither does the food; transit seems to have been overcome in Mr. Gould's instance, and certainly it may be again. It would indeed be delightful to see these lovely creatures homed in the Crystal Palace or the palm house at Kew; but perish the thought of caging them, and denying them full scope for the exercise of their restless wings.

The Humming Bird's Food and Beak.—"We find the humming bird's bill greatly diversified in form, and that each of these variations appears to be specially adapted for some given purpose; indeed I have never seen the law of adaptation more beautifully exemplified than in the multiplied forms exhibited in the bills of the members of the various genera of this family of birds. A certain generic character runs through the whole of them; the gape in all cases is very small, and whether the bill be curved or straight the upper mandible overlaps the under one on both sides, and thus forms an admirable protection for the delicate double-tubed tongue. If we examine the extraordinarily lengthened bill of Docimastes ensifer and the short feeble bill of the Lesbia Gouldi we see the extremes as regards the length of this organ, and we are not less astonished at the functions they are both intended to perform. The bill of the D. ensifer, which is nearly six inches long, and which contains a tongue capable of being protruded nearly as far beyond its tip, is most admirably fitted for the exploration of the lengthened and pendent corollas of the Brugmansiæ, while the short-billed Lesbiæ cling to the upper portion of those flowers, pierce their bases, and with the delicate feelers at the extremities of the tongue, readily secure the insects which there abound. I have been assured by M. Bourcier that this is really a practice of the bird, and that it frequently resorts to this device for the purpose of gaining its insect food, but I suspect that, besides exploring the stalwart Brugmansiæ, a more delicate flora is the object for which its bill is especially formed. In no part of America are so many tubular-flowered plants as among the Andes, and the greater number of the humming birds found there have straight and lengthened bills, such as the members of the genera Helianthea, Bourcieria, Cœligena, &c. The arched bills of the Phäethornithes are admirably adapted for securing the insects which resort to the leaves of trees, and upon which these birds are said to exist. But how much are we astonished when we examine the bill of Eutoxeres, and find this organ curved downwards beyond the extent of a semicircle, a form beautifully adapted for exploring the scale-covered stems of the larger palms."

"Let us turn to another genus of this group—Grypus. Here the bill is not only armed with a strong hook at the end of the mandibles, but with a row of numerous and thickly-set teeth. The G. nævius is said to frequent the borders of the great forests, and to gain its food from among the interstices of the bark of the palm trees. Both this bird and the Eutoxeres, as well as the Phäethornithes, are said (and I believe with truth) to feed principally upon spiders, and we know that these are the food of the Grypus. All the members of the genus Ramphomicron are said to feed on insects which inhabit the alpine

Floræ, and their bill is well suited to the capture of the minute insects found in those elevated regions. In some instances the bill is perfectly wedge-shaped, as in Heliothrix, while in others it suddenly turns upwards, as in Avocettula. These forms are also adapted for some special purpose, of which, however, at present we are ignorant. Besides these there are others whose bills approach somewhat to the form of the flycatchers, as the Aithurus. This bird we know frequently seizes insects on the wing, and so doubtless do many of the others. It will have been seen that all these forms of bill are well suited for the capture of insects, and, as might be supposed, insects constitute the principal food of the humming bird, but that liquid honey, the pollen and other saccharine parts of flowers are also partaken of is evident from the double tubular tongue with which all the species are provided. Besides this they readily and greedily accept this kind of food when offered to them in a state of captivity, or when the corollas of a bouquet of flowers placed in a window are filled with sugar to entice them to approach; and from my own experience I know that they have been kept in captivity for several months upon this kind of food."

Here then we have all that Mr. Gould has to say on the important subject of food, and it must be admitted by all true naturalists that the very diversity of food, and in the manner of feeding, are important characteristics of the tribe. Among other groups of birds we find constancy of food an excellent guide in classification; thus the swallow tribe may be associated and distinguished by their propensity to capture exosteate animals on the wing; the hawk tribe have a like *penchant* for living endosteates; the vulture tribe for dead and putrefying endosteate carcasses; the herons for fish, and so on; but when we examine such a heterogeneous tribe as that called the passerine birds we find it contains consumers of every different kind of food; thus we have bird-eaters, insect-eaters, grain-eaters, fruit-eaters, &c., and indeed many groups which seem absolutely omnivorous. Mr. Gould finds amongst the humming birds, muscivorous, arachnivorous, mellivorous and pollenivorous species, thus making out a *primâ facie* case for considering the group of diversified food and economy, and leading to a conclusion, also *primâ facie* but inevitable, that a group thus diversified is of greater extent than hitherto ascertained, and of proportionate importance in a natural system. I will revert to this subject almost immediately, and will suggest another possible cause for the diversity in question; but I must first pause for a moment to consider Mr. Gould's mention of pollen and other saccharine parts of flowers. The slight obscurity of these words induces me to pen the following queries.

First, Is the pollen really a food of the humming bird? *Secondly*, Can it, in the precise language of Natural History, be properly called "saccharine"? *Thirdly*, What are the "other saccharine parts of flowers," the "liquid honey" having been already carefully eliminated? I leave these queries unanswered: let the reader take them for what they are worth.

To take any exception to Mr. Gould's conclusions that the food of humming birds is very various, but that insects really do "constitute their principal food" may seem somewhat captious, but certainly drawing my conclusions from Mr. Gould's own observations, and without travelling the least tittle beyond his own record, I should be ready to conclude from the wonderful structure of their double tubular tongue, so similar to that of a Papilio or Sphinx, from their known preference for long tubular corollas, from their propensity to pierce those corollas with instinctive certainty at the exact point where the nectary is situated, and, finally, from the interesting fact here recorded of the mode of feeding and kind of food so complacently taken in confinement: from all these I say I should be ready to conclude that the liquid honey of flowers was the normal food of the humming bird. But, then, how numerous the exceptions! and here I will not take shelter under the trite and really paradoxical adage that exceptions prove the rule, but will grant at once that the exceptions are, for anything I know to the contrary, as constant, as prevalent, and as clearly established as the rule itself. But what is the teaching of these exceptions? In the first place how very frequently do we find a phytophagous bird, whether it be a fruit-feeder, as the whitethroat, a seed-feeder, as the goldfinch, a corn-feeder, as the sparrow, or a feeder on the wheat plumule, as the skylark certainly is in the autumn, seeming to abandon its normal and natural food during the whole of the breeding season, and spending its time and its energies in searching for caterpillars to feed its young. Is not the humming bird thus employed when she visits the wondrous web of the spider, and plucks the unsuspecting geometrician from its centre, while her wings vibrate so swiftly as to be invisible, and so gently that the delicate fabric is scarcely moved by the artificial breeze? And does she not carry away the minute spiders thus captured to feed her young ones? Certain it is that where this habit was observed the spider-catchers were actually engaged in rearing a brood of little ones. I would not, however, restrict the insect food of the humming birds exclusively to spiders; there is no reason to doubt that they eat winged insects also. But taking this for granted, and taking it also as exceptional, a similar exception exists with the birds I have mentioned, all of which freely eat insects throughout the breeding season. Taking still another view of the subject nothing is more likely, I might almost say more a matter of course, than that in a group so diversified as the humming birds there should be a division feeding on flies and another on spiders, and that neither of these facts should in any way interfere with the normal mellivorous propensity of the tribe implied in the extraordinary structure of the tubular tongue.

I am well aware how common it is for the man of straw in the critic's chair to assume a knowledge superior to that of the author he is reviewing. I will not fall into that error. Knowing how perfectly Mr. Gould has informed himself on all these points, I take it for granted he is scarcely open to contradiction on matters of fact; neither do I know from what other source I could obtain reliable statements opposed to anything he has advanced had I desired to do so. The suggestions I make have a wider scope and more general bearing than the pleasure of detecting an error of fact or of pointing out an inconsequent inference.

Flight of Humming Birds.—"How wonderful must be the mechanism which sets in motion and sustains for so lengthened a time the vibratory movements of a humming bird's wing! To me their action appeared unlike any thing of the kind I had ever seen before, and strongly reminded me of a piece of machinery acted upon by a powerful spring. I was particularly struck by this peculiarity in the flight, as it was exactly the opposite of what I expected. The bird does not usually glide through the air with the quick darting flight of a swallow or swift, but continues tremulously moving its wings while passing from flower to flower, or when taking a more distant flight over a high tree or across a river. When poised before any object this action is so rapidly performed that it is impossible for the eye to follow each stroke, and a hazy semicircle of indistinctness on each side of the bird is all that is perceptible. Although many short intermissions of rest are taken during the day the bird may be said to live in air, an element in which it performs every kind of evolution with the utmost ease, frequently rising perpendicularly, flying backward, pirouetting or dancing off as it were from place to place, or from one part of a tree to another, sometimes descending, at others ascending; it often mounts up above the towering trees, and then shoots off like a little meteor at a right angle; at other times it quietly buzzes away among the little flowers near the ground; at one moment it is poised over a diminutive weed, at the next it is seen at a distance of forty yards, whither it has vanished with the quickness of thought. During the heat of the day the shady retreats beneath the trees are very frequently visited; in the morning and evening the sunny banks, the verandahs and other exposed situations are more frequently resorted to. In the intervals of flight I believe that they not only rest in the ordinary way, but even pass some time in sleep; at least I found that this was the case with my living birds, and that from this state of partial torpor they were not easily aroused. In the morning and evening they were far more animated than at any other period of the day; and they would even perform their buzzing evolutions round their cage and sip from their little bottle in the night time if a light was brought into the room. They usually sat in a moping position, with the bill in a line with the body, or slightly elevated, after the manner of the kingfishers. I never saw them hang by their feet and sleep with their heads downwards, a position which I have been informed is sometimes assumed by humming birds."

Such being our author's description of the flight of humming birds it follows as a matter of course that the organs of flight should be next presented to our notice, and it seems desirable in this place again to invite the zoologist to contrast the insect-like flight of the humming bird, here so truthfully pourtrayed, and the smooth hawk-like flight of the swift, which differs in every character. It is curious, and for my purpose most opportune, that Mr. Gould in his admirable remarks has no idea whatever of giving any prominence to this difference; on the contrary his previously-quoted remarks on affinities indicate a leaning towards the strange hypothesis that the humming birds have tolerably near affinities with the swifts.

The Humming Bird's Wings.—"When we have compared the wings of Calliphlox amethystinus with those of Patagonia Gigas we have noticed the two extremes of development in those organs, but many intermediate forms exist, and each modification has doubtless an influence on the mode and power of flight. I cannot leave the subject of the wings without alluding to the extraordinary development of the shafts of the primaries in the Campylopteri. The great dilatation of these feathers would lead one to suppose that they have an influence on the aërial movements of the birds, but, strange to say, this remarkable feature only occurs in the males; the females are entirely destitute of it. It might naturally be supposed that such a modification of so important an organ must be formed with an especial object. What, then, can be the particular use of the broad dilated shafts of these singularly and apparently awkwardly-shaped wings? Generally the primaries and secondaries are of a sombre and uniform hue, while the shoulders or wing-coverts in most instances are of the same colour as the other parts of the body. There are, however, a few, but a very few, exceptions to the rule, and I may mention the Eulampis jugularis and Pterophanes Temminckii as instances in point; both these birds have luminous wings, and must form very striking objects during flight, and, as I believe colour is seldom given without the intention of its being exhibited, there is doubtless something peculiar in the economy of these birds. The primaries and secondaries are in some instances stiff and rigid, while in others they are soft and yielding; some are broad, others narrow; they are always the same in number, and the first quill is constantly the longest, except in Polytmus cephalater, where the second exceeds the first in length."

The tail, so often called the "bird's rudder," must necessarily be considered in connection with its wings the undoubted propellers of the bird's course through the air.

The Humming Bird's Tail.—"Connected intimately with the mode of flight is the form and structure of the tail, and in no group of birds is this organ more varied; in some species it is four times the length of the body, in others it is so extremely short as to be entirely hidden by the coverts. Every humming bird, however, has ten tail-feathers and no more. I am aware that this number is not apparent in some of the smaller fork-tailed species, the two centre feathers being so exceedingly minute as to be almost obsolete; but if a careful examination be made that number will be found. The tail appears to be, and doubtless is, a very important organ in all the aërial movements of the Trochilidæ, and accordingly we find very great variations in its form among the many different genera of which the family is composed. In Cometes and Lesbia the forked character is carried to its maximum, while its minimum is seen in Calothorax, Acestrura and the allied groups. The tails of all the members of the two former and many other genera are of this form, while in others it is only seen in a single species of a group, all the other members of which have rounded, square or cuneate tails. Next to this we may notice the species with feathers terminating in spatules, such as Loddigesia, Spathura, &c. I was informed by the late Mr. Dyson that the flight of these birds presents a marked difference from that of other humming birds, and that their appearance in the air is most singular, the tail being not only constantly opened and shut, but the spatules always in motion, particularly when the bird is poising over a flower; and if this be really true what an extraordinary appearance must the Loddigesia mirabilis present during its evolutions!"

The last structural peculiarities to be noticed are those of the feet.

The Humming Bird's Legs and Feet.—"Nothing has yet been said respecting the legs and feet. Diminutive as they are they will be found to be very diversified. In some instances the tarsi are bare, in others they are thickly clothed, as in the Eriocnemides; in some the toes are very diminutive, and are furnished with equally small rounded nails; in others all the toes, particularly the hinder one, are greatly developed and armed with long, curved and extremely sharp spine-like claws. This latter form is admirably adapted for clinging to the petals of flowers, a habit common to many members of the family, which not only settle upon but thrust their spiny bills through the bell-shaped flowers. The power these little birds possess of clinging to the branches is very remarkable; they hang on with their little feet and hooked claws like bats with such pertinacity that I was often fearful of dislocating the legs of my living birds when attempting to remove them from their perch."

I do not wish to conceal the fact that these copious extracts are made because they are delicious and instructive, and will I am sure be welcomed by my readers. It is a matter of course that I should append to them certain commentaries just to show that I have not quoted at random, but have had a method and aim, to which the extracts are used as contributions. That object is classification. Mr. Gould's views on this subject are now before us. "While I admit," says he, "that humming birds are somewhat allied to the swifts, they are so essentially distinct from these and all other birds that they might be separated into a distinct order," &c. (see *ante*). The admission that they are somewhat allied to the swifts seems an act of courtesy rather than of judgment, since Cabanis and all the later writers unite them with the swifts and goatsuckers, and since the writer of the admission proceeds immediately to point out what he considers the most striking points of dissimilarity. Now when we consider the *prestige* attached to the name of Gould as an ornithologist and the very humble claims which the editor of the 'Zoologist' possesses to be called an ornithologist at all,—his weaknesses having taken very different forms, as of fern culture, reptile study, caterpillar describing, &c.,—it cannot be expected that his editorial opinions will have much weight, still I venture very explicitly to state that I dissent *in toto* from Mr. Gould's first conclusion that the humming birds are "somewhat allied to the swifts," and equally so that humming birds can possibly "constitute a separate order of birds." And were it necessary to go farther I cannot see that Mr. Gould has brought out the strongest points of difference between humming birds and swifts, although he very evidently desires to do so. Let us investigate these matters.

The "most ample wings and vast powers of flight" Mr. Gould considers as supporting the view that the humming birds and swifts are closely allied. I cannot regard these characters of the slightest value, otherwise the affinity will extend with equal force to the vultures, the terns, the albatross and the frigate bird. The *experimentum crucis* is this, How are the wings used? What says Mr. Gould on the subject? The motion of the wings of humming birds is so "rapidly performed that it is impossible for the eye to follow each stroke, and a hazy semicircle of indistinctness on each side of the bird is all that is perceptible." Now I cannot describe in language so graphic as Mr. Gould's the mode in which the swallow tribes use their wings; if I could the contrast would be more striking perhaps than any to be found throughout the feathered world. Indeed there is no similarity between the wings of humming birds and swifts, except such as is common to other birds, and in the use of the wings the contrast is the most violent that can be imagined.

Coming to Mr. Gould's second suggestion, that of constituting the humming birds a separate order, in what do these nectar-drinkers, honey-imbibers, sun-loving, Sphinx-like fairy birds of the New World differ from those of the Old World; I mean the Nectarinidæ. There is a difference, indeed there are differences, but incomparably less important than those which separate the humming birds from the swifts; the nectar-drinkers of the New World, regarded collectively, have the feet small and the tarsi short, while those of the Old World have feet and tarsi and toes of moderate size, much as in the Sylviadæ; and the mode of flight differs in the two groups, that in the Nectarinidæ being much after the weak and ill-sustained manner of the other passerine groups; and in no instance with which I am acquainted does the sun-bird of the Old World quaff the nectar of flowers while hovering on the wing. Many years ago I could have ridiculed, as Mr. Gould does now, the idea of making the humming bird an inhabitant of both worlds, but now that these nectar-drinkers have gradually become less unfamiliar I have learned to regard with far greater leniency the frequently-repeated assertions of travellers that they have seen humming birds on the coast of Africa and among the delightful spurs of the Himalayas. These assertions, though not rigidly in accordance with scientific fact, are nevertheless so nearly true that they establish beyond a question that the nectar-drinkers of all countries are closely allied, so closely indeed as to deceive the instructed eye of many an accomplished and observant traveller.

Let us now examine the humming bird's mouth and compare it with that of the nectar-drinkers on one side, and those of the goat-sucker, the swift and the swallow on the other; and here let me observe that if we once adopt a division, such for instance as that called fissirostral, let it comprise *all* those birds which clearly possess the character in question, but let us exclude *all* others which have been annexed simply because they are difficult to dispose of in any other way, such for instance as the kingfishers. The true fissirostral birds are the Caprimulgidæ nocturnal, and the Hirundinidæ diurnal; and whether we call them fissirostres or swifts we must regard them as a united and most natural group, and must compare or contrast their most strongly pronounced characters with those of the humming birds. First the gape is an important element in the beak of every bird; in the Nectarinia and Trochilus the gape is extremely small; it does not extend into the cheek, it is scarcely perceptible when the mandibles are separated, it is invisible when the mandibles are closed. Compare this with the gape in Podargus, which is simply a nocturnal swift. I select the Podargus because it exhibits the swift character in excess. When the mandibles are separated for the purpose of gulping the enormous nocturnal insects which constitute their food the bird looks as though the upper portion of the head must inevitably fall off, so widely does the gape extend below and beyond the eye. Even when closed it often curves upwards almost behind the eye: the reader unacquainted with this extraordinary structure will do well to trace it through the genera Batrachostomus, Podargus, Caprimulgus, Scotornis, Cypselus, Acanthylis and Hirundo. There is no halting-place between either two of these genera. From the gape we pass easily to the external development of the beak. I use the word external for want of a better; I mean that portion projecting in advance of the face. In the seven genera I have mentioned above the united mandibles, forming two sides of an equilateral triangle, scarcely project beyond the face, and present a strange contrast to the excessive gape. In Nectarinia and Trochilus the beak is extended in a slender form and with parallel sides far in advance of the face, and however the species (erroneously called genera) either may vary in the curvature or length of their beaks, these characters of slenderness, parallelism and deficiency of gape obtain throughout these groups, as regularly as the triangular form, absence of extreme development and excess of gape in the true fissirostres.

One glimpse at the tongue and I have done. In humming birds this organ assumes an extraordinary form and character, which I regret to say I have never had the opportunity of examining, but which from the description would appear to differ from that of all other birds. It is long, slender and extensile, or capable of protrusion far beyond the beak; but its distinguishing character is that nearly throughout its length it is bitubular, the tubes uniting almost in the throat, where the tongue is continued in the excessively-developed forks of the hyoid bones, and united to muscles which pass under the throat, and then returning over the head are attached to the fore part of the skull, not far from the base of the upper mandible. This wondrous structure is partially observable in the woodpeckers, the extensile character and the apparatus for protrusion and retractation being much the same; but the tongue of the woodpecker is not tubular, the extremity being converted into a kind of harpoon, with which the insect prey of the bird is transfixed. The goatsuckers and swifts have small and short tongues, quite incapable of protrusion; and this brevity of tongue may be said to culminate in the kingfisher, where it is reduced to an insignificant triangular process lying at the base of the lower mandible. The tongue of the sun-bird is long and slender, but I find no sufficient authority for stating that it is either extensile or tubular, and therefore this organ affords me no corroborative evidence of the affinity I have desired to establish between the humming birds and the sun-birds.

And now it is time that I bring this protracted notice to a close. It has extended to a far greater length than I intended, and its very length has for several months delayed its appearance; but worse than this, and more to be lamented, the subject is yet incomplete; the nests of humming birds remain untouched and unexamined, and these alone might fill a number of the 'Zoologist.' I might explain from personal observation, not in "Antarctic France" but in smoky London, how these beautiful little structures are sometimes glued to the surface of a palm leaf, sometimes stuck in the fork of a branch, sometimes suspended by a rope of straw, swinging lightly and in safety amid the uproar of equatorial storms. I might tell how that they always contain two snow-white eggs reposing side by side, and looking like twin sugarplums; but I forbear: I leave the subject with no promise, indeed with no intention, of returning to it. I can do nothing further than refer my readers to the works of that indefatigable and most accomplished naturalist, who has made the subject his own, and whilst shedding a flood of light on the history of the humming bird has earned for himself a name that will not die. Of such a naturalist as

Gould it is possible that George Herbert was thinking when he sang,

> "Of all thy creatures, both by sea and land,
> Only to man hast thou made known thy ways;
> And put the pen alone into his hand,
> And made him secretary of thy praise."

EDWARD NEWMAN.

The Norwegian Jer-Falcon (Falco Jer-falco norvegicus of Wooley, "rip-spenning," *Lap.*, "jagt falk," *Sw.*)—Of this dark jer-falcon I only succeeded in obtaining one nest with three eggs, which was taken by a Lap on the 8th of June, from a high cliff on the shores of Lake Wihrigaur, on the Norwegian frontier, about fifty miles west of Quickiock. And now allow me to say a few words respecting this northern jer-falcon. And first I will refer the reader to Dr. Bree's 'Birds of Europe,' in which he will find a life-like picture of this bird, be it only a variety of the Iceland falcon or a distinct species. I have not had the luck to examine many specimens of this falcon, but all I have seen have been as dark in plumage as Dr. Bree's figure. They all appeared to be smaller than the Iceland falcon; the colour different from the young Iceland falcons which I have seen, and more resembling the peregrine falcon; and although I am hardly competent to give an opinion, in my mind it is clearly a distinct species, entirely confined to the Scandinavian fell (but not only to Lapland, for it is met with as far south as the Dovre fells in Norway, where it is known by the name of the "bla falk," or the blue falcon). The egg coloured by Dr. Bree is from a specimen in the British Museum, and more resembles a light variety of the egg of Falco islandicus than the eggs of this dark jer-falcon which I obtained. The three eggs which were brought to me with part of the old female were of a uniform dull red colour all over, not speckled or patched, and of a more elongated form. This bird is well-known to the Laps, who distinguish it from the peregrine, the only other large falcon that breeds on these fells; and it appears to be not rare — in fact, from what I could gather, more common in this district than even the peregrine. So much confusion has existed, and so many different opinions have been given respecting the identity of this falcon, that any observations which may tend to throw a light on the matter must be acceptable to the naturalist. Whether or no there be three distinct species of the jer-falcon, one thing appears to be clear, that this dark falcon never becomes perfectly white, as in the Greenland and Iceland forms. And here let me correct a mistake which seems to have gained ground in England, "that in Scandinavia the forms found in Greenland and Iceland never seem to occur." Far from this being the case I never yet heard of this dark variety (unless, indeed, we follow Nilsson, and consider this dark form as nothing more than the Iceland and Greenland bird in a dark state of plumage) being killed off the fells, and certainly all the jer-falcons which are killed in the south and middle of Sweden (and I have seen them very white) appear to belong to the Greenland and Iceland forms. Nay, more than this, I bought at Quickiock a skin of a very fine white old Iceland falcon, which was killed up there in 1861. The man who shot it considered it a great rarity, as he had never seen one so white before, but I do believe that the only bird which breeds on these fells is the dark Falco Jer-falco norvegicus. I very much doubt, however, whether we are correct in applying the Linnean synonym of Falco lanarius to this bird, and in this opinion I am borne out by Nilsson, for in the last edition of his 'Birds of Scandinavia' (1858) he describes the Falco lanarius, *Lin.*, as quite a different bird, under the Swedish name of "slag falk." And although Linneus, in his 'Systema Naturæ' (at least in my translation by Turton, of 1800), in describing the F. lanarius does not say anything regarding the colour of the head, Nilsson in describing the "slag falk" (*F. lanarius*, Lin.), distinctly says, "head white, tinged with rusty yellow," and, except that he gives the length of the old female twenty inches, his general description agrees with Dr. Bree's description of the lanner falcon (*F. lanarius*, Schleg.), 'Birds of Europe,' p. 37. Linneus's description of the lanner was from a younger bird killed in Sweden. In Nilsson's description of the Falco Jer-falco he does not use Linneus's synonym of F. lanarius, but he gives to it the synonym of F. rusticolus, *Lin. Faun.* p. 19 (older female), and also F. Jerfalco, *Lin. Faun.* p. 22 (young bird). Neither Nilsson nor Sundewal will allow that there is more than one species of jer-falcon in Sweden, in describing which Nilsson uses all these synonyms:—"Falco Gyrfalco, F. islandicus, F. candicans, F. grœnlandicus, F. rusticolus, F. fuscus, F. umbrinus," and he gives it the Swedish names of jagt falk, hort falk, bla falk (the name by which this dark F. Gyrfalco norvegicus is known on the Norwegian fells), and he also gives to the same bird the Lapland name of reifsakfalle—thus clearly identifying it with our Lap "rip-spenning," which word has precisely the same meaning as the riefsakfalle, only used in another district. He then gives us descriptions and measurements taken by himself from fourteen different specimens, varying in length from 21 inches to 25 inches, and presenting every shade of plumage, from the dark young to the old white mature bird. Nilsson's experience in Swedish Ornithology is very great, and has extended over many years, and his opinion, with me at least, always carries weight. I may remark that he divides his specimens into two series—the first with oblong, the latter with transverse spots. He winds up his remarks with the following pertinent note, which I translate freely and fully:—"To this latter series probably belongs Schlegel's F. candicans islandicus, as he has described it in his 'Révue Critique,' p. 4. It is also undeniable that Linné's F. rusticolus and F. Gyrfalco belong to this group, but by referring to the above measurement it does not appear that the F. Gyrfalco is so much smaller than F. candicans islandicus. Herr Schlegel ('Révue,' p. 57) expresses his surprise that the true Norwegian F. Gyrfalco, which he (Schlegel) nevertheless supposes to be identical with Linné's F. lanarius, *Faun. Suec.*, should have been altogether unknown to the Scandinavian naturalist until he (Schlegel) described it. And Degland, in his 'European Ornithology,' reiterates the same. Yet it would indeed have been very surprising had such been the case; but not only has this F. Gyrfalco been known to us even from Linné's time, but we also know the transitions from this to the F. candicans islandicus of authors; therefore we do not consider ourselves justified in dividing them into two or more species." So much for Nilsson. He clearly considers this F. Jerfalco norvegicus of Wooley, the F. grœnlandicus of Hancock and F. islandicus of Hancock as all varieties of one bird—F. Gyrfalco, *Lin.*, and not three distinct species; and presumptuous as it may appear for me to differ with a naturalist of such standing, I cannot help it. Without going into the question as to whether F. islandicus of Hancock and F. grœnlandicus of Hancock are anything more than local varieties of the same bird, I consider the dark Norwegian jer-falcon a clearly distinct species from either; and although, perhaps, the young of this may be easily confounded with the young of the F. islandicus of Hancock there is too marked a difference in my eye between the old bird to admit of their being considered as nothing more than the same bird in a different stage of plumage. Kjærholling, the Danish naturalist, distinctly says that this Norwegian jer-falcon, which he calls Falco Gyrfalco, is distinct from both the Iceland and Greenland forms. In his description, he says of this Norwegian bird :—" It never becomes white. From the young Iceland and Greenland falcon it differs in its smaller size (in the same sex), by the dark spot on the cheek (as in the peregrine), by its yellow-green legs; and, further, in that the spots on the under part of the body and sides have the form of 'transverse bands.' "—*H. Wheelwright, in 'The Field.'*

Kite (Falco Milvus) *near Leeds.*—We have had a specimen of the kite (Falco Milvus) in the woods here for the last eighteen months. I gave orders that it should not be molested, in the hope that it would find a mate, and so breed here; but though it is still about, it has not yet met with a help meet.—*W. Christy Horsfall; Horsforth Low Hall, near Leeds, January* 2, 1863.

Common Buzzard (Buteo vulgaris) *at Battle.*—A fine old female of the common buzzard was trapped upon the Battle Abbey grounds, Sussex, on the 23rd of December last, and sent to me for preservation; the entire plumage is a dark chocolate-colour.—*Robert Kent; St. Leonards-on-Sea, Sussex, January* 8, 1863.

Roughlegged Buzzard (Falco lagopus) *in Cambridgeshire.*—The land-steward of General Hall has informed me that his master, while cover-shooting near the Six-mile Bottom Station, was agreeably surprised to flush a truly magnificent specimen of this hawk. Through the kindness of the steward I have been favoured by a sight of this bird, which is nearly in full adult plumage, a dark variety of the species. This bird had been seen and known to frequent the locality (a famous one for its habits, being the best stocked with game of any in the county) for some time previous to its accidental capture by the gun of General Hall. Numerous farmers and sporting men in the immediate vicinity had even followed it for a day at a time, but with no success, owing to its being extremely vigilant and wary, never allowing of a near approach. At the time of its unlucky appearance and the deadly aim of General Hall, I have no doubt that its appetite had for once stilled its instinctive warning of approaching danger. The capture was made on the 7th December, 1862.—*S. P. Saville; Dover House, Cambridge, January* 5, 1863.

The Roughlegged Buzzard (Falco lagopus) *in Yorkshire.*—On Friday last, the 16th instant, a fine male specimen of the roughlegged buzzard (*Buteo lagopus*) was shot in this neighbourhood. It is at present in the hands of Mr. Richard Richardson, bird-stuffer, Beverley, at whose house I saw it in the flesh, and proved its sex by dissection. —*W. W. Boulton; Beverley, Yorkshire, January* 19, 1863.

The Roughlegged Buzzard.—The roughlegged buzzard (*Falco lagopus*, Brunn; "*fjösbent wrak*," Sw.), was by far the commonest of all the birds of prey in the Quickiock district during the summer, probably owing to the quantity of lemming which swarmed on these fells. Of all the falcons, I think that this buzzard varies most in the shading of its colouring, and I have remarked that the female is generally lightest, becoming nearly gray-white with age. But if the birds themselves vary, I am sure we may say the same of the eggs, for I have taken them of every shade, from pure white to a dark brown blotched egg. It is almost impossible to distinguish these eggs from dark varieties of the common buzzard's, except that in general the egg of the roughlegged buzzard is a little larger (but I have seen the egg of the common buzzard as large), and it has a rather finer and bolder character, if I may be allowed the term. These buzzards appeared on these fells as spring migrants. The first I observed was early in May, and the first nest I obtained was on May 21st, with three eggs; and although I have obtained the nest with five, and once even with six eggs, I observed that three was the most usual number, and most often sat on. The nest, a coarse edifice of sticks, moss and grass, loosely put together, was often on a fell-ridge, often in a tree, but never down in the forest; always on the sides of the fells, but always below the snow-region. I have occasionally seen them beating over the lower meadows in the end of July, after the young ducks, but I never by any chance saw a roughlegged buzzard in the forests. The fells appear to be their peculiar summer home (for they breed in no other part of Sweden); and on August 18th, the last day that I was on the fells, I counted seventeen on the wing, soaring very high over one fell tract; and the reader may further fancy that they were very common here, from the fact that more than fifty nests were destroyed in this district during the spring of 1862. In habits, flight and appearance, the roughlegged buzzard much resembles its congener, the common buzzard, from which it may be always distinguished when in the air by the white root of the tail. Its cry is a loud "ka haa," not unlike the melancholy call of the common buzzard, and is in perfect harmony with the wild, lonely fell-tracts which it frequents. The period of breeding must extend over a very long space of time, for I observed downy young ones in a nest on August 6th. I do not think this bird is so sluggish in its habits as the common buzzard; and, although doubtless lemming and fell mice form their principal food, I am certain that they destroy many ptarmigan, for I have seen the ground surrounding the nest thickly strewed with the feathers of the ptarmigan.—*H. Wheelwright, in 'The Field.'*

The Roughlegged Buzzard (Falco lagopus), *and Hen Harrier* (Falco cyaneus) *at Ashburnham Park.*—A noble specimen of the roughlegged buzzard, a female, was trapped as above, on the 13th of January; the hen harrier, a very beautiful-marked ringtail, was also trapped by the same person, on the 17th of January; they are now in my possession.—*Robert Kent; St. Leonard's-on-Sea, Sussex, February* 8, 1863.

Notes on the Hawk Owl (Strix funerea), *and Tengmalm's Owl* (Strix Tengmalmi) *as observed in Lapland.*—The hawk owl was by far the commonest owl in this district, and although, of course, like the rest of the tribe, the lemming forms its principal food when they are "in season," I don't believe this bird migrates much, but remains stationary in the same district throughout the year. It is true, however, that in winter we occasionally kill an odd example, both old birds and birds of the year, as far south as Wermland, but I do not think, except as stray individuals, they migrate from their native forests. The range of the hawk owl in the north is precisely that of the Siberian jay—the lower fir-forests at the foot and by the sides of the fells. The hawk owl is by no means shy, and in the breeding season is one of the boldest of all birds. Seated on the top of a dead pine, close to the nest where his mate is sitting, the old male bird keeps a constant watch, and as soon as any one appears to be approaching the nest, he raises his tail and head (just after the manner of the cuckoo), and uttering a shrill cry, not unlike that of the kestrel hawk, down he comes full on the head of the intruder; dashing by with the speed of lightning, he returns to the charge again and again, till he has either cleared the coast, or has paid the penalty of his rashness with his life. My lad was really frightened at this bird, and always hated to go up to a nest; and well he might, for on one occasion, when taking the eggs out of a dead pine, without a branch to help him, holding on, as the sailors say, "by his eyelids," forty feet from the ground, the old bird made a swoop down on his head, struck off his cap (through the top of which a large slit was cut), and in a moment returned to the charge, tearing off a very fair-sized handful of his hair. I was standing below, and knocked the old bird over with his claws full of hair. Had I not been at the bottom of the tree with my gun, the lad might easily have been beaten off his hazardous perch. There is no trouble in shooting the hawk owl if you have only a close-ranging dog in the forest; for, whatever time of year it may be, as soon as ever the bird spies a dog below him, he always descends to give battle. In flight, manners and appearance, the hawk owl is closely allied to the hawks. It is strictly diurnal in its habits, and to the stealthy quiet flight of the owl adds the spirit and courage of the falcon. No forest bird is safe from the attacks of these owls. I have seen them strike down the Siberian jay, their closest neighbour, on the wing; and more than once have I disturbed them feeding on the old willow-grouse, a bird half as large again as themselves. Their principal food appears to be birds, lemming and wood mice, but I have often taken insects out of their stomachs. There is little difference in the plumage of the male and female, but the latter is rather the larger; and in the breeding season I have observed that the breast and belly of the female is strongly tinged with reddish brown. The male takes his turn at sitting, for I have shot both as they flew out of the hole from the eggs. The hawk owl moults very early, as do many of the northern birds. Like the Siberian jay, the old birds may be seen in deep moult, without tails, even before the young are flyers; and in both the autumnal moult is complete as soon as the young birds are full-feathered. The hawk owl is then in its best plumage, and its clean, pure, shining dress at that season is very different from the dingy colouring of spring. The nest is always in a hole in a rotten pine or fir, sometimes at considerable height from the ground. On June 30th I took a clutch of the hawk owl with eight eggs—probably a second clutch from a bird whose first nest had been robbed, for we seldom found fresh eggs after the second week in May, and early in June we shot young flyers. I also took, on May 30th, a clutch of Tengmalm's owl, with ten eggs. But these certainly were exceptional cases. As to the nest, I never saw a *nest* of either, the eggs having been always laid, like those of the woodpecker, in a hole with nothing under them but a few dry splinters and chips of the rotten or fresh wood, as the case might be. The eggs of the hawk owl very often so much resemble those of the short-eared owl that one might well pass for the other; but they are in general a little smaller, rather more elongated and pointed at the small end, and of a deep dirty white. Usual size: 1½ inch by 1⅛. Tengmalm's owl was, next to the last, the commonest owl in our forests, but, being much more nocturnal in its habits than the hawk owl, it was not so often seen; not that the light appears much to affect its vision, for here the summer nights are as light as day, and we rarely went into the forest on any night without seeing this pretty little owl hawking after its prey. The eggs of this owl vary much in shape, but not so much in size. In the same nest you will see some eggs as round as musket-balls, others oval and elongated. The usual size, however, is about 1⅜ by 1 inch. This owl has a much more southern range than the last, for we not unfrequently take nests in S. Wermland; but, strange to say, they are met with, like those of the crossbills, only about every third year. This owl goes to nest early; after the end of May you rarely find eggs. It has been remarked that whenever this owl has appeared in autumn, in the very south of Sweden, a severe winter has always followed. We found it to occupy in the Quickiock forest precisely the same range as the hawk owl, and we never, by any chance, saw one on the fell-sides higher than the fir region. It is a bold, voracious little bird. One light night I shot a female in full chase after lemming on a frozen lake. In Wermland, on one occasion, having caught an old female on the eggs, I took her home in a small fishing creel, and casting in a titmouse which I had shot found it nearly devoured when I arrived home. I had her for a long time in a cage, and a very pretty little pet she was, becoming very tame. The call-note was a very musical soft whistle, which, however, I never heard, except in the evening and night. I could never detect the slightest difference in plumage in the male and female. Till I took the nest in Wermland no Swedish naturalist appeared to be aware of the fact that this owl bred so far south. We took our first nest at Quickiock on the 2nd of May, and the last on the 30th of May.—*H. Wheelwright, in 'The Field' of January* 31, 1863.

[This excellent and very observant naturalist sometimes uses the same word in slightly different senses, thus rendering the context somewhat obscure. It will be noticed in the present most interesting paper that after explicitly stating that these owls make no *nest*, he speaks of their *nests* several times, alluding evidently to the hole in which these eggs are deposited. The assertion that these owls make no nest I believe to be quite correct.—*E. Newman*].

Great Gray Shrike (Lanius excubitor) *near Taunton.*—Last November a specimen of the great gray shrike was shot on the Nynehead estate, and has come into Captain Sanford's possession. The history of this specimen is a little singular, and perhaps may serve to show the fate of many a rare bird which a collector would give almost anything to obtain. The shrike was shot by a labourer who brought it home for his children to play with. After having amused them for a day or two it was thrown out on a dung-heap, as it had become rather stale. It here attracted the notice of Captain Sanford's gamekeeper, who, not knowing what it was, took it away for his master's inspection. It had been in the dung-heap a day or two before this happened, so that the bird-preserver in Taunton had rather a business to make a presentable specimen of it.—*Murray A. Matthews; Taunton, December* 6, 1862.

Great Gray Shrike (Lanius excubitor) *near Newmarket.*—I obtained yesterday a fine male specimen of the great gray shrike, which had been shot a few days previously near Newmarket.—*J. E. Harting, Kingsbury, January* 8, 1863.

Occurrence of the Redbreasted Flycatcher (Muscicapa parva) *in Cornwall.*—The following communication which I received from Mr. Gould enables me to add the above interesting and (to Western Europe) rare species to our Cornish list of birds:—

"Strange to say on the very day I visited Falmouth one of the rarest of European birds was shot for the first time in Great Britain, and it being killed in Cornwall I thought you would like to know something about it. The bird in question is the Muscicapa parva, and you will find figures of it in Part 14 of my 'Birds of Europe,' which you have in the Penzance Museum. The plates will at once give you an idea of this pretty species (a robin among the flycatchers). I certainly never expected this singular bird to have been added to our Fauna. This occasional lateral migration of birds is very singular: the proper home of the species is Western India or the eastern parts of Europe. The specimen was sent in the flesh to Dr. Gray, of the British Museum, and in this state I had it in my hands, so that there is no mistake about it. The bird was in good condition, thanks to your genial climate. The bird was shot on the 24th of January, by Mr. Copeland, of Carwythenack House, in the parish of Constantine, near Falmouth, and is a female. Unfortunately the specimen was placed in some insecure place, and the head was eaten by mice or rats, so that the body alone was sent to the Museum. If you write to Mr. Copeland ask him to look out for the male, which will have a red breast.—John Gould."

I wrote at once to Mr. Copeland, whose attention to Natural History, and whose especial interest in observing the ornithological rarities in our county, I felt sure would ensure an accurate account of the capture of this little wanderer, and I received from him in reply the following interesting remarks on the habits of the bird.

"Carwythenack, Constantine, February 9, 1863.—Your favour has duly reached me. The little flycatcher alluded to we observed some days before it was shot. Its habits were interesting, taking a great deal the character of our summer visitor. We first observed it on a dead holly tree; this tree and the ground around the house were its favourite resort. It was particularly active, skimming the grass to within about a foot, then, perching itself, darted occasionally with a toss, resting either on a shrub or the wire fencing. There is another in the neighbourhood, for which a vigilant watch will be kept. I saw it a few days back in a plantation which is four hundred yards from my house. Should I be fortunate to capture it you shall have due notice. I believe that with due attention many interesting visitors may be found.—G. A. Copeland."

I am unable to offer you any particulars of this valuable fact, except second-hand, but no doubt, upon the two authorities I have quoted, you will feel a pleasure in giving the visit of this new British bird a place in the 'Zoologist.'—*Edward Hearle Rodd; Penzance.*

Black Redstart (Sylvia tithys) *in the County Dublin.*—The black redstart has appeared here this year. On the 4th of January I saw one specimen, a female; on the 11th I saw two more, both also females.—*H. Blake-Knox, Bartragh, Dalkey, Co. Dublin, February* 8, 1863.

Early Nesting of the Hedgesparrow (Sylvia modularis).—A patient of mine (on whose word I can thoroughly rely) informed me a few days ago that he had found the nest of a hedgesparrow in his garden on the 1st of this month, containing four eggs, upon which the old bird was sitting. The nest was built of the usual materials, in a privet hedge, protected on one side by the wall of an out-building. My informant broke one of the eggs accidentally, and found it to be quite fresh. Several persons called to see the nest, the existence of which in this locality is certainly a most unusual circumstance. I was unfortunately prevented calling myself until to-day, when I found that some one had taken the nest, but had nevertheless left behind a sufficient portion to assure me that the materials were undoubtedly freshly gathered, and that the statement I had received was perfectly correct.—*W. W. Boulton; Beverley, January* 10, 1863.

[The notices of early nests are too numerous to mention, including hedgesparrows, robins, thrushes, blackbirds, titmice, sparrows and greenfinches.—*E. Newman*].

Parental Affection of the Willow Wren.—A pair of these little birds built last spring in my garden, in a bed of money-wort, under a branch of rhododendron, by which the nest was partially concealed. When first discovered by my gardener I think it contained three eggs, and, fearing lest the birds should be drowned by the torrents of rain which fell at the time, he placed over it an inclined roof of oilcloth, about a foot square. The bird continued to lay more eggs, until one day my youngest child saw the nest in the rude clutches of a favourite Scotch terrier. Having rescued it and taken it into the house in its dilapitated state, it was reconstructed as well as female hands could do it, and the eggs and nest both replaced. The birds at once returned, and though visited several times a day by various members of my family, succeeded in hatching four young birds, which, however, had the misfortune finally to fall a prey to the same dog. Mr. Yarrell mentions a somewhat similar case with respect to the same bird.—*Thomas Fry; Liverpool, December,* 1862.

Fire-crested Regulus (Regulus ignicapillus) *off St. Leonard's.*—On the 29th of last December a specimen of the fire-crested regulus was captured on board a collier, while laying at anchor off St. Leonard's, about a mile from the shore. It was quite exhausted, and allowed itself to be taken without making any attempt to escape. It is now in my collection.—*Robert Kent; St. Leonard's-on-Sea, January* 8, 1863.

The Shore Lark (Alauda alpestris) *near Lowestoft.*—A specimen of this rare bird, which is now in the possession of Mr. Gurney, of Norwich, was procured by me on the 28th of November, 1862. It was shot whilst running about quite alone on our Denes, on the day previous. Two or three others had also been seen, but not obtained. —*Arthur Wells Roberts; Lowestoft, December* 3, 1862.

Early Sparrow's Egg.—On the 12th inst I picked up, on the pavement in front of my house, a sparrow's egg. It was quite fresh, and must have been laid that morning, as I am sure it was not there the day before. Is not this a very unusual occurrence at this time of the year?—*W. Christy Horsfall; Horsforth Low Hall, near Leeds, December* 15, 1862.

White Variety of the House Sparrow (Fringilla domestica).—Mr. Gunnell, farmer, of Milton, in Cambridgeshire, shot, on the 28th of November last, a nice clean white variety of the house sparrow. This specimen was as white as any I ever saw, having only two small feathers of a dingy colour in its entire plumage. This poor little inoffensive farmer's helpmate had been constantly hunted by every idle boy in the parish, until it became a prey to Mr. Gunnell's fowling-piece, in my idea not over much to his credit, myself loving to see such rarities at large.—*S. P. Saville; Dover House, Cambridge, January* 5, 1863.

The Bittern (Ardea stellaris) *at Eastbourne.*—A very fine bittern was shot here on the 25th of November, which I had the opportunity of seeing and examining in the flesh.—*John Dutton; Eastbourne, December* 18, 1862.

Spotted Crake (Crex porzana) *near Taunton.*—When snipe-shooting, on the 18th of November, in some fens near Taunton, I shot a couple of spotted crakes. I mention this because of the late date, if the birds are to be considered migratory; there would be nothing unusual in the circumstance if this crake is only a partial migrant, as I am inclined to fancy it to be. My brother shot a specimen of the same species, on the 1st of March last, on the Braunton Burrows. This bird did not appear to have recently made a long flight, and might have been on the Braunton Marshes all the winter. The more it is considered the more difficult the migration question becomes to solve. I cannot help thinking that a careful collection and investigation of facts relating to the migration of birds, animals and fishes (and even insects), with a view to solving this problem, would be a more worthy object of labour than one or two questions which have been engaging the attention of our leading naturalists of late.—*Murray A. Matthews, Taunton, December* 6, 1862.

American Snipe.—In reply to the editorial query (Zool. 8287), I beg to say that I consider Scolopax Gallinago, S. americanus and S. Wilsoni constitute one species only, and that species distinct from the common snipe of Europe. We also find it named Scolopax Brehmi, &c., and Macgillivray says, "A species of snipe, Scolopax Wilsoni, occurs in North America." I would call it Scolopax americanus, seeing that there is but one known species in North America, and it has doubtless a better claim to be so designated than our common snipe has to be called the European snipe, seeing that four or more species occur. Though I have described—rather minutely, too—one of the darker specimens I procured, I had no idea of its being distinct.

Wilson says, "The female differs in being more obscure in her colours, the white of the back being less pure, and the black not so deep." Taking this for granted (which, by the bye, no ornithologist should do), I omitted to dissect one, though I skinned several: however, I have no reason to doubt Wilson's assertion, having invariably found both dark and light birds in the same swamps, and flying in company. I met with no other species of snipe during a year's residence in Canada. Why it should ever have been named Scolopax Wilsoni I cannot conceive, seeing that it must have been a well-known species long ere Wilson set foot on that continent.—*Henry Hadfield; Ventnor, Isle of Wight, December* 3, 1862.

[I do not yet quite understand my correspondent: if Scolopax Gallinago is portion of an aggregate species distinct from the common snipe of Europe, what is the common snipe of Europe to be called?—*Edward Newman.*]

The Sandpiper a Diver.—In the 'Zoologist' (Zool. 8196) Mr. Blake-Knox concludes his note with the remark, "Not knowing that these birds dived, I applied to Mr. Newman for information, and finding the fact entirely unknown to him, I insert this." I also observe notes on the diving of the sandpiper in the November and December numbers; but had it not been for Mr. Leven's assertion that he had noticed their diving "on one or two occasions, while the birds were amusing themselves on the shore or bank of the stream," there would, I think, be nothing very remarkable; for that a wounded water bird, though unwebbed, should endeavour to effect its escape by diving is not very wonderful. As to their swimming, I am inclined to believe that most unwebbed water birds would swim on being merely winged. In some unpublished notes I have recorded an instance of an oystercatcher swimming, as noticed at Lossiemouth, N. B., nor shall I readily forget it, on account of the wetting I got on the occasion; having, in mid-winter, waded into the sea after the bird, thinking, as it was in the dusk of the evening, that I had winged a duck. After pursuing it for some time in the shallow water, for it swam faster than I could walk, it took to the shore, where it was captured. As to the diving habits of the sandpiper, I have also a word to say, and will give the substance of the note above referred to. The same winter (that of 1858), and nearly at the precise spot, I shot some sandpipers while resting on a rock, two being merely winged. The rock was an isolated one, and I had some difficulty in getting to it, but the wounded birds remained quietly seated till I set my foot on it; they then plunged into the water, and could be seen diving or swimming beneath, one towards the shore (where it was subsequently caught); the other, making for some rocks covered with sea-weed, was lost sight of, and effected its escape. I had previously observed that, on being wounded, they would swim, but not dive. I have also seen sandpipers playing in shallow water, but never swimming or diving except when wounded.—*Henry Hadfield; December* 1, 1862.

Purple Sandpiper, Iceland Gull and other rare Birds at Dalkey.—The local little purple sandpiper (*Tringa maritima*) is rather a common species on this coast and the adjacent islands: it is generally seen singly or in pairs, though I have seen flocks of ten and fifteen. Unlike other birds of this family, the purple sandpiper evinces no fear of man; though approached within three yards, it will sit as if in a "brown study," with the head crouched upon the neck. Its cry is very similar to that of the snipe, though it also makes the shrill whistle peculiar to the sand birds. Birds shot in October have the purple feathers of the back deeply edged with cream-colour; those in winter plumage a narrow fringe of gray: the white of the abdomen is often suffused with cream-colour or pale pink. On the 2nd of this month, during a severe south-east gale, I saw an immature specimen of the Iceland gull: it passed under the rock on which I was sitting, and within five or six yards of me: if I had shot it, it would have fallen into the boiling sea beneath. The goosander is not uncommon; I have shot specimens this year. Kingfishers were numerous in the autumn. A gray phalarope was shot lately on the coast of Dublin.—*H. Blake-Knox; Bartragh, Dalkey, County Dublin, December* 2, 1862.

The Glossy Ibis in Shetland.—About the end of October, 1862, immediately after a gale from the S.W., a specimen of the glossy ibis was brought to Dr. Edmonston by a man who had just shot it in his corn-yard, in this neighbourhood. The skin was preserved, and it appears to be that of an immature bird; for, although the whole length (23 inches) is fully equal to that of an adult, the irregular white bars across the throat, the dull rusty hue of the neck and under parts, and the white tips of the feathers of the head, sufficiently indicate its age. Neither the sex nor the contents of the stomach were noted by the man who prepared the skin. The bird appeared to be much exhausted, and would scarcely take wing when disturbed.—*Henry L. Saxby; Baltasound, Shetland, January* 25, 1863.

The Egyptian Goose (Anser ægyptiacus) *in Pevensey Marshes.*—A very fine specimen of this rare goose was shot, on the 4th instant, by a man residing in the above-mentioned place, and purchased by me for my collection. It is in perfect plumage, and never appears to have been in captivity, and what tends to confirm me in this opinion is the presence of an old and perfectly healed gun-shot wound in the foot, and the unsoiled state of its plumage. I am well aware of the frequency of these birds escaping from ornamental waters, but do not think this one has done so.—*John Dutton; Eastbourne, December* 18, 1862.

Rare Birds in Devonshire.—The following birds have been shot, within the last ten days, in the estuaries communicating with Plymouth Sound:—Black guillemot (*Uria grylle*). This species is a rare bird in Devonshire: the specimen that has recently occurred is an old bird in winter plumage. Iceland gull (*Larus leucopterus*). This is an example of a young bird of the year. Glaucous gull (*Larus glaucus*). The specimen just obtained of this gull is a young bird. Both the glaucous and the Iceland gull occur in the district of Plymouth during winter.—*J. J. Reading; Plymouth.*

Buffon's Skua (Lestris parasiticus) *near Wellington.*—I have to record the occurrence of Buffon's skua near Wellington, towards the end of last October. This bird was shot on the property of Mr. E. A. Sanford, of Nynehead Court, and is now in Captain Sanford's collection. Although in perfect adult plumage, the two elongated tail-feathers were missing, seemingly having been but just shed.—*Murray A. Matthews; Taunton, December* 6, 1862.

Sabine's Gull (Larus Sabini) *in Devonshire.*—Among some birds I recently saw, belonging to a gentleman in this neighbourhood, was a very perfect specimen of Sabine's gull, a bird of the year, in the pretty stage of plumage in which the birds of the year of the blackheaded gull (*Larus ridibundus*) are noticed in the autumn. This bird was shot on the south coast of Devon a few years since.—*Id.*

The Fulmar Petrel (Procellaria glacialis) *near Birmingham.*—During the stormy weather that occurred in Birmingham last month a fine specimen of the fulmar petrel was captured in a field situate at Perry Barr, about two miles and a half from this town. This circumstance is the more interesting, as Birmingham is known to be the most centrally situated spot in England.—*Joseph Smith; The Poplars, Acton, Birmingham, January* 9, 1863.

The Forktailed Petrel (Thalassidroma Leachii) *in Norfolk.*—A specimen of this rare petrel was shot at Salthouse, on this coast, on the 17th of November. It proved on dissection to be a female, measuring in length 7¾ inches; wing, from the anterior bend to the end of longest quill-feather, 6 inches; leg 1 inch; middle toe and claw 1 inch. The stomach was filled with some fishy substance not distinguishable. This bird has been killed in Norfolk in several instances, but not, I believe, since 1849. The present example was shot on some brackish waters, which, on Salthouse beach, run parallel with the sea-banks, and, to use the expression of the beachman who sent it me, "appeared to be walking on the water."—*H. Stevenson.*

The Sexes of the Salamanders.—Will you allow me, through the medium of the 'Zoologist,' to put a question interesting to Herpetologists, which some of your readers may possibly be able to answer? How can the sexes of Salamandra maculosa be distinguished, from external signs? I have had for six months two living specimens, from the South of Europe, which I selected from about a dozen which were on sale together. Eleven of these were exactly similar in all respects, except the yellow markings, from which nothing can be inferred as to sex. The remaining individual (which I possess) differed in some of its proportions, the length of the tail especially, which I have found in the English Tritons to be a sexual characteristic. I therefore selected this specimen, in hopes of its proving to be a "help meet" for the other. My object is to institute some observations upon the reproduction, larva state, &c., of this species in the ensuing spring. I believe S. maculosa is the S. terrestris of the older authors, the former name being adopted in the Museum Catalogue. If this is the case, I apprehend that in the early spring my specimens will manifest an inclination to take to the water, under the influence of the reproductive instinct; and if I can succeed in inducing them to breed, the results will be of great interest. The species is ovo-viviparous, and doubtless presents some curious phenomena in its method of reproduction. I am led to believe that if I am fortunately in possession of both male and female little difficulty will be experienced in inducing so stupid and indifferent an animal to follow the dictates of its most important instinct. Both my reptiles have constantly taken food, generally larvæ of T. molitor, but also earth-worms, and other living prey suitable in size. They appear to be guided to their food simply by seeing it in motion, having no other criterion of what is eatable. If a small piece of meat be laid before them they take no notice, but if the same morsel be tied to a thread and made to dance and wriggle as if alive, they soon hunt it down, and, after swallowing it, choke upon the thread. They have been kept in a large fern-case, amongst growing plants and rock-work, and are in very fine condition. Their large black eyes and the brilliant orange-yellow of their spots entirely relieve them from the charge of ugliness. They have refused to hybernate, I presume because they have not been subjected to the requisite degree of cold, and so far they are in an unnatural condition. I observe no indications of the growth of a crest, such as begins at an early period of the winter to adorn the tail of our common Triton cristatus. Hence I infer that the terrestrial salamander probably does not vary in personal appearance throughout the year. Being now upon the subject of salamanders, I may mention that I found a different species concealed in rotten trees in the pine forest of Aitone, in Corsica. This I take to be Euproctus platycephalus of the Museum Catalogue. Having failed in getting these to England alive, I preserved the largest in spirit, and have it now before me. It differs considerably from my living examples, being much shorter and thicker, and with smaller and fewer yellow spots. The large head and obtuse muzzle well account for the specific name. The Triton alpestris I detected in a mountain stream of great coldness in the region of rhododendrons on the Pic Aubiste, Pyrenees. This animal, I am sorry to say, escaped from the vessel in which it was confined, and I had no opportunity of closely observing it. Our own species are confined to pools of still water, but in the South of Europe, where ponds of fresh water are scarce, the species seem to frequent running streams. Such was the case in Corsica, where I observed the larvæ of a Lissotriton (*Lophinus*) in some numbers in this situation. The perfect animal occurred on the ground in forests. To return to the principal subject of this communication: the organs and tissues concerned in generation are, in the case of the Urodela, concealed in both sexes within the cavity of the abdomen. It is not therefore easy to discriminate the sexes, in the absence of a crest and of differences of colour. The male of Triton cristatus closely resembles the female in winter time, when the dorsal crest has been absorbed. Nevertheless, the relative proportions of the tail and body afford a safe diagnosis. In the smaller newts (*Lophinus*) the persistent differences of colour in adult animals are sufficient to separate them. But I am ignorant of any differentiæ by which to discriminate the sexes of Salamandra. The insertion of this communication in the 'Zoologist' may perhaps elicit some information from those acquainted with Herpetology, and I shall be happy to communicate the results (if any) of my proposed attempt to breed young Salamanders.—*T. A. Marshall; 2, Vittoria Walk, Cheltenham, January* 16, 1863.

Distinctive Character of Reptiles.—It has often struck me as remarkable that neither Linneus, Cuvier, De Blainville, Geoffroy St. Hilaire, nor Agassiz, have noticed the simple and obvious external distinguishing character of reptiles; the epidermis or outer skin of quadrupeds is clothed with hair, of birds with feathers, of fishes with scales, but in reptiles it is uncovered, perfectly naked. It is not extraordinary that our natural-history bookmakers, having no practical knowledge of the subject, should have overlooked so vital an omission, but it is extraordinary that the men whose names I have enumerated above, each one of whom thought for himself, failed to observe so important a diagnostic. When, in 1856, I published my little treatise on the 'Physiological Classification of Animals,' I had no idea that the external or structural peculiarity of reptiles remained unnoticed. This omission is not simply such; it is accompanied by many positive errors; thus, Merrem and others have a reptilian order *squamata*, and Cuvier repeatedly uses the word *écailles* in describing the covering of snakes and lizards. The processes in question, whether described as *squamæ* or *écailles*, are projections, folds, or rugosities of the under-skin; and are not deciduous, like hairs, feathers and scales, but are as permanent and durable as the bones themselves. This may be seen when the slough of a snake is found. This slough is continuous, and contains a faithful mould of each of these processes; it is a very beautiful and very instructive object. The tortoise exhibits the peculiarity of an *articulated skin*, the articulation being clearly discernible ~~in~~ the living animal, but becoming more conspicuous after death, when dehiscence takes place, and the plates fall off, perfectly detached from each other.—*Edward Newman.*

Walking Fish.—A correspondent in Province Wellesley informs us that while passing along, during a shower of rain, the wide sandy plain which bounds the sea coast in the neighbourhood of Panaga, he witnessed a singular overland migration of Ikan Puyu (a fish much resembling the tench in size, form and colour), from a chain of fresh-water lagoons lying immediately within the sea beach, towards the second chain of lagoons, about a hundred yards distant inland. The fish were in groups of from three to seven, and were pursuing their way in a direct line towards a second chain of lagoons at the rate of nearly a mile an hour. When disturbed they turned round and endeavoured to make their way back to the lagoon they had left, and would very soon have reached it had they not been secured by the Malays who accompanied our correspondent, and who looked upon the migration as an ordinary occurrence at this season of the year. Upwards of twenty were thus taken during a walk of about half a mile, and no doubt many more could have been obtained had the Malays been allowed a little delay. The ground these fish were traversing was nearly level, and only scantily clothed with grass and creeping salsolaceous plants, which offered very slight obstruction to their progress. This singular habit will account for the rapidity with which the paddy fields in Province Wellesley become stocked with fish when they are flooded by the rains. The lagoons from which they came contain water throughout the year, while those towards which they were going are mere hollows, filled by the late rains.—*London and China Telegraph.*

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

Annual General Meeting, January 26, 1863.—FREDERICK SMITH, Esq., President, in the chair.

An Abstract of the Treasurer's Accounts for 1862 and the Annual Report of the Council on the general concerns of the Society were read.

The following gentlemen were elected Members of the Council for the ensuing year. Messrs. Dunning, Grut, Sir John Hearsey, M'Lachlan, Pascoe, W. W. Saunders, E. Shepherd, F. Smith, Stainton, S. Stevens, Waterhouse, J. J. Weir, and Professor Westwood.

The following Officers were then elected for the ensuing year. Mr. F. Smith, President; Mr. S. Stevens, Treasurer; Messrs. Shepherd and Dunning, Secretaries; Mr. Janson, Curator.

The President delivered an Address on the present state of the Society, in which he reviewed the *acta entomologica* of the past year.

Mr. Stainton proposed, Professor Westwood seconded, and the Meeting unanimously carried, a vote of thanks to the President for his conduct in the chair during his year of office, and in particular for the Address which he had just delivered. The vote was accompanied by a request that the President would allow the Address to be published in the 'Journal of Proceedings.'

The President returned thanks to the Society for the vote just passed, and also for re-electing him to the Presidential chair.

A vote of thanks to the Treasurer, Secretaries, and the retiring Members of the Council, for their services during the past year, was also carried unanimously, and was acknowledged by Messrs. Stevens, Dunning and Lubbock respectively.

February 2, 1863.—FREDERICK SMITH, Esq., President, in the chair.

The President nominated as Vice-Presidents for the present year Messrs. Pascoe, Waterhouse and Grut.

Donations.

The following donations were announced, and thanks ordered to be given to the respective donors:—'Bulletin de la Société Impériale des Naturalistes de Moscou,' 1861, Parts i. to iv. inclusive; presented by the Society. 'Tijdschrift voor Entomologie,' Ve deel 4e & 5e stuk; by the Entomological Society of the Netherlands. 'The Journal of Entomology,' No. 7; by the Proprietors. 'The Intellectual Observer,' No. 13; by Messrs. Groombridge & Sons. 'The Canadian Naturalist,' Vol. viii. No. 5; by the Natural History Society of Montreal. 'Sitzungsberichte der Königl. bayer. Akademie der Wissenschaften zu München,' 1862, ii. Heft ii.; by the Academy. 'The Zoologist' for February; by the Editor. 'The Journal of the Society of Arts' for January; by the Society. 'The Athenæum' for January; by the Editor. A specimen of Synuchus nivalis, "found under stones" near Reigate; presented by T. E. Hughes, Esq.

New Members.

Frederic Moore, Esq., and Edward Alfred Smith, Esq., were elected Members. A certificate was read in favour of Edward Parfitt, Esq., as an Annual Subscriber.

Exhibitions, &c.

The Secretary exhibited a box of "manna" from Tasmania, which had been anonymously sent to the Society, accompanied by a bottle which contained numerous specimens of a Hemipterous insect of the genus Eurymela, and which was labelled as follows:—"The insect which causes the manna to be formed on the white gum trees, by perforating the delicate young branches, for the purpose of feeding on the sap."

Mr. Bond exhibited a remarkable instance of arrested development in the left fore wing of a specimen of Colias Hyale; also a female specimen of Lycæna Adonis, in which some of the eye-like markings on the under surface were on the left side (*i.e.* right of the under surface) wholly wanting.

Mr. Haward exhibited a miscellaneous collection of Coleoptera, collected by himself three or four years ago in Central Europe, principally in Southern France and Germany, and in Switzerland and North Italy.

Mr. Stainton exhibited two bramble leaves, inside each of which was visible the cast-off skin of a larva of Nepticula aurella, and read the following note by Mr. C. Healy:—

Observations on the Moulting of the Larva of Nepticula aurella.

"On the 18th of January, 1863, I collected several bramble leaves containing young larvæ; in the afternoon of the same day I observed one larva resting in the centre of its mine in an apparently sickly state. On the following morning the old skin had split at the first segment, and the darkish blotch at the back of the head had receded to the second-segment. On the 20th the old skin had shrunk to the fifth segment, and at this date the whole of the first four segments had quite a transparent appearance, being devoid of all markings whatever, and contrasting strangely with the remainder of the larva's body; the larva lay quite motionless in its mine. On the 21st the mouth had regained its former brownish colour, and the larva now moved its head about in a languid manner in search of food, of which it partook sparingly. On the 22nd the darkish blotch had reappeared on the back of the larva's head; the old skin in the meanwhile having shrunk still lower down, the anterior portion of the body had now become much stouter and had a more healthy and fresher appearance; the larva now commenced feeding with great eagerness: at this period the dorsal vessel, which had lately become more distinct at the fore and after part of the larva's body, was quite hidden in the centre. On the 23rd the whole of the dorsal vessel was distinctly visible, the anterior portion being of a much brighter green than the posterior."

Professor Westwood exhibited drawings sent from Australia by Dr. Howitt, of two species of Lucanidæ; one was the species recently described by the Professor as Ryssonotus? jugularis; the other, the original of which was found in Gipps' Land, was probably the male of Dorcus Pelorides, of which the female was in the British Museum.

Professor Westwood also called attention to a paper in the 'Tijdschrift voor Entomologie,' by Prof. Van der Hoeven, upon Periphyllus Testudo, a Hemipterous insect, which always remained in an apterous state; and to a paper on the Insects of Ceylon, by M. Motschulsky, in the Bull. de la Soc. Imp. des Nat. de Moscou.

Mr. Waterhouse exhibited British specimens of the following species of Homalota which are not included in his 'Catalogue:'—

1. Homalota velox, *Kraatz*. One specimen taken by Mr. Waterhouse at Brockenhurst, in the New Forest, and a specimen taken by Mr. Hislop in Scotland.
2. Homalota flavipes, *Thomson*. Found on the banks of the Thames and Medway, at Gravesend and near Strood.
3. Homalota gemina, *Erichson*. From the Hammersmith Marshes.
4. Homalota vilis, *Erichson*.
5. Homalota picipes, *Thomson*. Atheta picipes, *Skandinav. Coleopt.* iii. 81, 30. H. fusco-femorata, *Waterh. MSS.*
6. Homalota augusticollis, *Thomson*, *Ofv. af. Vet. ac. Förh.* 1856, 100, 22. Atheta angusticollis, *Thoms. Skandinav. Coleopt.* iii. 87, 38.

The following notes, having reference to some of the above-mentioned species, were communicated to the Meeting:—

" Homalota Vitis, *Erichs.*, and H. picipes, *Thoms.* Of each of these two species I have seen but a single specimen. The insects were captured (by myself, I believe), long since, but their localities were not noted down. Of course with such scanty material I should wish my determinations to be looked upon with some doubt. As there already existed a species of Homalota bearing the name 'picipes' before Thomson applied the name to the insect above noticed, I have substituted the name 'fusco-femorata' for this insect.

" Homalota flavipes = Halobrectha flavipes, *Thoms.* = Homalota maritima, *Waterh. MSS.*, and a nearly allied species H. puncticeps, *Thoms.* More than four years since in examining my specimens of Homalota I distinguished two species as belonging to Dr. Kraatz's third section of this genus, both of which are found under *rejectamenta* on our sea-shores, and both are remarkable for having the head strongly punctured. They have, moreover, the fore parts of the body pretty densely clothed with pubescense. One of these insects is extremely like H. occulta, but has smaller antennæ. It is black, and has the antennæ, palpi and legs more or less piceous; the antennæ without any perceptible paler colouring at the base; the legs, with the tarsi, the knees, and the tips of the tibiæ, usually more or less testaceous. The head is very nearly equal in width (and indeed in total bulk) to the thorax, the sides subparallel, and with the eyes small and not prominent; the upper surface convex, thickly and distinctly punctured, the crown presenting usually a more or less distinct fovea (perhaps in the male sex only). Thorax subquadrate, very little broader than long, the hinder part distinctly rounded; the sides (which are furnished with two or three setæ) parallel and very indistinctly rounded; the surface thickly and distinctly punctured; in some specimens (males ?) with a large oblong shallow fovea on the disk; in others a faint small fovea behind. Elytra depressed, about one-fourth broader than the thorax, and nearly half as long again (as in H. occulta), very densely crowded with punctures, and hence dull. Abdomen glossy, with the basal segments rather sparingly punctured; the fifth segment very sparingly, and the sixth almost impunctate; the apex more or less piceous. Posterior tarsi short.

"This insect is clearly the Homalota puncticeps of Thomson = Halobrectha puncticeps of his 'Skandinaviens Coleoptera,' iii. 49, 1.* It also agrees perfectly with a specimen from the shore of the Baltic, sent by Dr. Kraatz to the British Museum as his H. puncticeps. But it does not agree with the insect named by the same authority in my own collection, nor in that of Mr. Wollaston. The description given by Hardy of his H. Algæ evidently belongs to this species, but he notices a variety (" dilutiora, antennis fusco-ferrugineis, basi, ore, pedibus anoque testaceis ") which apparently is the insect next about to be noticed. The specimen alluded to by the same author as having a slight elevation on the sixth abdominal segment must present an abnormal condition of the part. I have seen no such rising in the specimens which have come under my notice.

"The Homalota anthracina of Fairmaire is referred by Dr. Kraatz and by its original describer to the present species, but with doubt; and certainly the description (especially the one published in the 'Faune Francaise') in many respects agrees with the H. puncticeps, but the form of the thorax (which is said to be 'presque aussi large que les élytres,' and 'très arrondis sur les côtes' would appear to be different. H. atricilla of Erichson has been identified with the present species. The description, as far as the colouring is concerned, might have been taken from a very immature specimen of the insect, but, in other respects, is for the most part so utterly at variance with the actual characters of the species that I cannot but believe that there is an error in the identification — that perhaps the so-called type-specimen has been transposed and wrongly labelled.

"The second species is well described by Thomson, under the name Halobrectha flavipes, in his 'Skandinaviens Coleoptera,' iii. 50, 2. I shall content myself with pointing out its distinguishing characters as compared with H. puncticeps. Its general colouring is less dark, being pitchy black; the elytra more inclining to piceous, and the abdomen black. The legs, antennæ, palpi and parts of the mouth testaceous; the terminal joint of the palpi, the apical half of the antennæ, and the femora and tibiæ, however, more or less tinted with fuscous. The antennæ are rather stouter. The head, thorax and elytra are less densely punctured, and hence less dull; the elytra are but little longer than the thorax, and the posterior tarsi are considerably more elongate. The apex of the abdomen is more or less rufescent. This species I formerly regarded as the H. puncticeps of Kraatz, and it stands under that name in my 'Catalogue.'

"Unless entomologists consent to adopt the minor subdivisions of the great genus Homalota proposed by Mr. Thomson it will be necessary to substitute some other specific name for the present insect, as there already exists one species of the genus bearing the name flavipes. I propose for it the name of maritima.

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* The original description, published by Thomson in the 'Transactions of the Academy of Sciences at Stockholm' for 1852, I have never been able to consult.

"H. angusticollis, *Thoms.* In the last edition of Schaum's Catalogue (1862), this insect appears as a distinct species in the third column of p. 24, but further on (first column of p. 25) the name reappears, and in this case is linked with that of H. ravilla, *Erichs.* I have a specimen before me of the last-named insect, sent by Dr. Kraatz to the British Museum, and likewise a specimen of H. angusticollis, received by Mr. Crotch from Thomson. With this material, it would appear that I was in a favourable position for determining whether the insects are identical or not. Both insects appear to me to be males. Thomson's specimen has the penultimate abdominal segment gently (but still evidently) emarginate, as the describer points out to be the case in the male of his species; and further this insect agrees perfectly with the two British specimens which I exhibit to the Society, excepting that in these latter the penultimate abdominal segment is more acuminate at the apex, and is truncated. These two specimens then, as I take it, furnish the opposite sex of A. angusticollis. They have the same structure of antennæ, with the terminal joint of moderate length; that is, as Thomson says, half as long again as the preceding joint. On the other hand, Erichson describes the terminal joint of the antennæ of H. ravilla, 'magno, ovato, precedente triplo fere longiore,' and such is the case in the insect received from Dr. Kraatz. This latter author, however, states that the terminal joint is equal in length to the two preceding joints taken together, so that I am left in uncertainty as to whether the remarkably large terminal joint which I find in the specimen of H. ravilla is constant,—whether, in short, it may not be sexual. In this same specimen the penultimate segment of the abdomen is truncate or most indistinctly emarginate, and the truncated portion is broader than in the English specimens, which I regard as females of H. angusticollis. In other respects, I can discover no differences between the H. angusticollis and the H. ravilla."

Mr. Waterhouse then communicated the following note, and exhibited (on the part of his son, Mr. Charles Waterhouse) a series of specimens of a species of Homalota, which is extremely close to H. analis in its general characters, but which will possibly prove a distinct species:—

"The specimens were collected recently in the Hammersmith Marshes, in company with H. analis, and my attention was first directed to them through the uniform dark (nearly black) colouring of the body and antennæ. Upon examination, I find that the dark insects differ from H. analis in their sexual characters, the male having a very much deeper notch in the upper plate of the penultimate abdominal segment than in the corresponding sex of H. analis, whilst the female has the plate in question truncated at the apex. After the examination of a very large number of specimens of H. analis, I have not been able to detect any decided distinctions in the sexes through the structure of the penultimate abdominal segment; in all it has a largish notch at the extremity in the form of an obtuse-angled triangle; in some the notch is slightly deeper than in others, but there are individuals presenting intermediate conditions. In the penultimate abdominal segment of the darker-coloured insect, the sinus of the upper plate has its depth slightly exceeding its width; the sides are subparallel, diverging but indistinctly, and the innermost half is nearly semicircular, or we may compare the sinus to the outline of a bluntly terminated cône. The edges of the segment bordering the sinus are margined,—*i.e.* there is a delicate impressed line immediately within the margin. In H. analis the triangular notch does not show a corresponding impressed line: here the plate is slightly arched, but in the transverse direction only; whilst in the deeply notched segment of the other insect the lateral portions are curved downwards. The apex of this segment is tinted with piceous in both sexes, but I have seen no specimens in which the entire segment is testaceous, as is generally the case in H. analis. The antennæ are dusky, often to the base, but sometimes the two basal joints show a dusky testaceous tint in parts, especially on the under side and at the base."

With respect to this communication, Mr. Waterhouse made the following remarks:—

"The Homalota soror of Kraatz (Nat. der Ins. Deutschl. p. 257), we are informed, is very closely allied to H. analis, but is distinguished by the antennæ being darker and a little more incrassated towards the apex; by the palpi being pitchy brown; the thorax and elytra blackish; the abdomen almost as thickly, but much more finely punctured, and uniformly black. The male has, in the upper plate of the penultimate abdominal segment, a still larger triangular notch,* the margins of the plate on either side of the notch falling off more obliquely. In the insect exhibited I do not perceive the differences in the punctuation alluded to, nor those in the structure of the antennæ.

"Again, a species of Homalota is distinguished from H. analis by Thomson (see his 'Skandinaviens Coleoptera,' ii. 294), under the name Amischa platycephala, by having the abdominal plate in the male deeply emarginate, and in the female truncate, so far agreeing with our insect. But A. platycephala is said to be broader than H. analis, less convex, and with the fovea on the thorax obsolete; the antennæ testaceous at the base, and the elytra obscure testaceous,—distinctions which do not exist in the insect before the Society. I still think it possible that it may be identical both with H. soror and A. platycephala. Thomson says of his species that it is scarce in North Scania, and Kraatz simply informs us that the H. soror was taken by him near Bonn, and he makes no mention of the female. It is probable then that neither of these authors had ample material for arriving at the characters of the species, and that, under more favourable circumstances, their descriptions might have been modified. However this may be, this note is communicated to the Society with the view of eliciting further information respecting those species which are certainly most closely allied to H. analis. The last-mentioned species I have collected in great numbers in various localities, but, amongst eighty specimens roughly grouped together in my unexamined collection of species of Homalota, I do not appear to possess a single specimen corresponding with the insect from the Hammersmith Marshes, of which my son found and exhibits two dozen specimens, presenting an equal number of males and females. The species then would appear to be very local."

Paper read.

Mr. M'Lachlan read a paper on Anisocentropus, a new genus of exotic Trichoptera; descriptions were given of five species of that genus, *viz.*, A. illustris, n. sp. (of which specimens were exhibited), A. dilucidus, n. sp., A. immunis, n. sp., A. latifascia, *Walk.*, and A. pyraloides, *Walk.* To these was added the description of a new species of Dipseudopsis, D. collaris, from China.—*J. W. D.*

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* "Noch weiter dreieckig ausgeschnitten." I am not sure that I have rendered this sentence accurately. Both H. analis and H. soror, according to Dr. Kraatz, have a triangular notch or emargination to the abdominal segment in the male, and, as I understand the matter, the segment is still more notched in the latter species than in the former; the term "weiter" cannot be translated simply as "deeper," nor as "wider," but its sense would be conveyed by the two latter terms combined.

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TO CORRESPONDENTS.

Owing to an unfortunate error in paging Sheet P, in the February Number, I have thought it desirable to reprint that sheet, the corrected sheet being published with the present number. Subscribers are requested *at once* to cancel the incorrect sheet, which is now a duplicate: this will save their binders a great deal of trouble.

Contributions standing over.—On Quadrupeds: from E. Blyth and Capt. Hadfield. On Birds: from Capt. Hadfield, Hugh Hornby, John Dutton, E. Blyth, Abraham Edmonds, H. E. Dresser. On Fishes: from Thomas Edward, and on Artificial Rearing of Salmon and Trout. On Mollusks: from John E. Daniel and Arthur Adams. On Lepidoptera: from the Rev. Joseph Greene (2) and Henry Doubleday (2). On Coleoptera: from E. C. Rye. On permanently enlarging the 'Zoologist' at an increased price: from Capt. Hadfield.

The Collections of British Insects, Cabinets, Books on Entomology, &c., &c., the property of the late JOHN WALTON, Esq., F.L.S., &c.

MR. J. C. STEVENS begs to announce that he has received instructions to Sell by Auction, at his Great Room, 38, King Street, Covent Garden, about the middle of the month of March, the above-mentioned COLLECTIONS. At the same time will be included the VALUABLE CABINET OF BRITISH COLEOPTERA of a Gentleman giving up the Study, and a Collection of BRITISH LEPIDOPTERA. The days of Sale will be announced in future Advertisements in the 'Athenæum' and other papers. Catalogues will be ready one week prior to the Sale.

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